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Computer-mediated communication among family and consumer sciences teachers

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Computer-mediated communication among family and consumer sciences teachers

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This is to certify that the master's thesis of

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Signatures have been redacted for privacy

DEDICATION

This thesis is dedicated

to those who have instilled in me life values, provided me with inspiration and encouragement, to reach far beyond what I ever dreamed and thought possible

to the memory of my father

to my mother

my husband

and my children

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ABSTRACT

The purpose of this study has been to investigate the uses of telecommunication networks among family and consumer sciences (FCS) teachers. Three family and consumer sciences yahoo electronic bulletin boards -- North Carolina family and consumer sciences, FCS work and family, and FCS teachers -- on the World Wide Web were selected for the study. The electronic bulletin board was a place where family and consumer sciences professionals share ideas, reflections, and dialogue on teaching and updates in the field of family and consumer sciences, while also providing support for each other as a member of an electronic professional community.

A pluralistic approach using interpretive research design was used to explore the contents of the messages of interaction that facilitated collaborative reflective conversation and professional development on the electronic bulletin boards. Data sources were from electronic bulletin boards and survey instruments administered to selected informants. A total of 691 message threads were downloaded in 12-month period from three electronic bulletin boards.

Analyses of this data reveal that the use of electronic bulletin boards afforded the members the opportunity to discuss and reflect on issues that were important to their teaching and professional development. The findings reveal that certain topics promoted discourse on all the electronic bulletin boards indicating that FCS teachers experienced similar situations and used the electronic bulletin boards to share and discuss these experiences. An analysis of the electronic bulletin boards' postings showed that North Carolina State Department of Education personnel contributed to the large number of dialogues observed on the North Carolina family and consumer sciences electronic bulletin board.

CHAPTER 1. INTRODUCTION

Rationale and Justification

Concerns have been raised about the isolation and alienation of family and consumer sciences teachers in the field of education. Court (1999) reports that the "egg crate" structure of schools and a too-rigid timetable, especially in secondary schools, created the physical conditions for teacher isolation. Teachers are confined to their classrooms and are unable to converse with other teachers about problems and concerns. Studies indicate that the problem of teacher isolation is grounded in the culture of the profession and the conditions of the schools as a workplace (Fisher, 2000). Research conducted at the University of Central Florida reported by Carley (1989) provided further evidence to this problem. Out of 196 teachers surveyed, over 80% indicated that their classrooms were private worlds that nobody besides themselves or their students entered. Formal and informal invitations by colleagues into their classrooms to observe their classroom management strategies or interpersonal skills and to invite observation by others were rare (Vann, 1995). These findings show that many teachers feel isolated from colleagues.

The problem of teacher isolation is particularly traumatic for beginning teachers. The first year in any profession is demanding, but for first year teachers the stresses and tensions seems particularly daunting. Unlike any other profession, new teachers are expected to assume full teacher responsibility on the first day of their first year (Fisher, 2000). The beginning teacher's job is often challenging, frequently discouraging, and sometimes devastating (Merseth, 1992). Beginning teaching assignments are negatively impacted by the educational system when novices are assigned the same responsibilities as experienced or veteran teachers while they are still in the process of adjusting. New teachers are typically

given the most challenging teaching assignments and left to sink or swim with little or no support. Furthermore, new teachers are placed in the most disadvantaged schools, assigned most difficult-to-teach, low ability, and disruptive or unruly students and a greater share of extracurricular activities than veteran teachers (Columbia Group, 2000; Sweeney & Whitworth, 2000; Wyant, 1996). They encounter many harsh realities during their first year of teaching and are often forced into situations where they are required to masquerade themselves as experts (Sweeney & Whitworth, 2000).

In addition, new teachers face isolation and resentment from veteran classroom teachers who erect invisible, solid and impenetrable walls around themselves, and are hesitant to assist for fear of interfering (Fisher, 2000; Vann, 1995). Graduates of the Hofstra University secondary education program complained that in their schools they often felt isolated from and in opposition to other personnel (Hines, Murphy, Singer, & Stacki, 2000). Thus, novices reluctant to ask for help for fear of seeming incompetent, alone in their classrooms without access to colleagues for problem solving or role modeling to solve their frequently encountered problems are frustrated, exhausted, and discouraged.

Unfortunately, a large percentage of teachers abandon the classroom within the first few years as a result. In North Carolina, 16 – 20% of new teachers were reported to leave after the first year and 40 – 50% by the end of the fifth year (Columbia Group, 2000; Fisher, 2000). Similarly, New York City Board of Education estimates that one-sixth of the city's new teachers leave the school system after one year and about a third leave within three years (Schwartz, as cited in Hines et al., 2000). Regan (2001) reported that nearly 30% of those who elect education as their career choice leave the field after the first year. Many of the problems that beginning teachers encounter are due to a lack of mediated entry into the

profession. Sweeney and Whitworth (2000) reported that educational systems are built around invalid assumptions about entry into the profession. These assumptions include: a) that a pre-service preparation program equips teachers with the kind of knowledge and skills to be effective; b) that it is permissible for beginning teachers to "learn to teach" in the unsupervised environment of their first classrooms; c) that teacher training begins with a university program and ends with certification; d) that large group in-service can provide assistance to teachers struggling with unique problems, and e) that the structured assessment of teachers can, in and of itself, insure quality teaching.

In response to the growing concerns of this teacher isolation problem, it is not surprising that many authors recommend a more collaborative, nurturing, and mentoring environment for beginning teachers along with gradual induction into the profession (Regan, 2001). A number of solutions have been proposed in the last decade to retain beginning teachers in the profession and to reduce the premature attrition rate as well as re-invigorate veteran teachers (Regan, 2001; Sweeney & Whitworth, 2000). The National Commission on Teaching and America's Future (1996) urges public investment in in-service mentoring and professional development programs for teachers (Hines et al., 2000).

A recent and on-going remedy involves the establishment of computer networks that link veteran teachers or educators in the universities and classrooms with new teachers in the profession through telecommunications. The participants in most cases communicate with a host computer using modems and personal computers. They enter the message(s) on their computers, and then these messages are transferred over phone lines and saved on the host server for other users to access (Merseth, 1992). The veteran teachers act as mentors for the new teachers providing them with support, guidance and resources for managing classroom

duties (Diehl, Harris, Barrios, O'Connor, & Fong, 2000). The new teachers can also communicate with each other, and discuss, share problems, and identify concerns. Ideally, the network becomes an electronic support system for new teachers, connects them to the world and to their profession, allows them to be collegial and reflective, and encourages them to share problems with assurance of confidentiality for professional development (Fisher, 2000).

Electronic communities for teachers have been reported to have the potential to break down teacher isolation barriers and provide a support network for teachers in the classroom (Bodzin & Park, 2000). Some studies have been conducted on the effects of pre-service teachers interacting with an electronic telecommunications network. Merseth's (1992) study of first-year teachers from the Harvard University School of Education participating in the Beginning Teacher Computer Network (BTCN) showed that first year teachers' electronic telecommunications create an atmosphere of personal and emotional support, collegiality, and professional growth. University of California reported the following benefits of intern science teachers using an electronic mentoring program: increased time to reflect on what they were learning, increased feeling of rapport with and support from their university supervisor, decreased feeling of isolation, increased self-esteem due to mastering technology, and increased knowledge and use of information access and retrieval (Diehl et al., 2000). The results of a study by Schlagal, Trathen, and Blanton (1996) at Appalachian State University point to the structure of e-mail use as being an important factor in eliciting spontaneous exchanges of ideas.

Need for the Study

Teaching has been characterized as a culture of isolation. In addition, for some specialized subject areas such as family and consumer sciences, often only one teacher is found in a school building and sometimes a school district. Yet, in our rapidly changing world we need to develop learning communities that model the process of constant renewal and professional growth. To sustain significant change, teachers need to contribute to a shared practice of teaching (Wheaton & Kay, 1999). Without a communication network system in place, these teachers are often barred from growing professionally and are likely to leave the teaching profession after a few years. Computer telecommunication networks have the potential to address teacher isolation and facilitate teachers' professional development. These networks support a great deal of communication and collaboration among teachers. As telecommunication technology becomes more commonplace in instructional settings, it is increasingly important to understand what types of discourse are occurring on electronic bulletin boards of teachers.

To date, little research has been found to investigate the support or barriers family and consumer sciences teachers encounter when pursuing continuous professional development. Further, there are no studies in the literature concerning the use of electronic bulletin board communications among family and consumer sciences teachers. Studies that have been conducted were designed to evaluate use of electronic bulletin board communications among science and math teachers. Because the web is now easily accessible to teachers at home and in their schools, there is a need to investigate electronic bulletin board communications among family and consumer science teachers.

Research Questions

The purpose of this study is to investigate current uses of electronic bulletin boards by family and consumer sciences teachers. To better understand the computer-mediated communications of family and consumer sciences teachers on the web, four research questions were formulated to analyze the content of the messages on the electronic bulletin boards.

(1) What are the characteristics of family and consumer sciences teachers who use computer-mediated communication networks?

(2) What are the frequencies of message threads on the electronic bulletin messages?

(3) What is the content of the messages of interaction?

(4) What topics promoted greatest exchange of ideas?

Limitations of the Study

The study is limited to easily accessible messages posted by family and consumer sciences teachers on the electronic bulletin boards. Another limitation is the abilities or expertise of the members of the group who participate and their willingness to discuss fully and precisely their needs for support. The validity and objectivity of the researcher in handling data presents another limitation, as do the researcher's interpretations of the bulletin board messages. The study is further limited by the ability of the researcher to summarize and present group responses. Due to the qualitative nature of the study, the generalizability of the results may also be limited.

Definition of Terms

Computer-mediated communication: The acquisition and/or exchange of information between and among humans via the use of a computer. It involves delayed-time, text-based messages and may include a variety of facilities ranging from electronic mails to accessing remote databases. This communication may be related to a specific task or interpersonal communication. It includes e-mail, electronic bulletin boards, and teleconferencing.

Electronic Bulletin Board: A telecommunication service for sharing information. Bulletin boards contain "rooms," "topic areas," and "conferences" where participants send messages. Messages can be read in "threads" or sequence. A subject line serves as a guide for labeling the messages. Users can post and respond to messages and leave them for others to read.

CHAPTER 2. REVIEW OF LITERATURE

In this review of literature, an overall perspective of teacher orientation and socialization will be explored. This is followed by teacher isolation. Next, computer-mediated communications and non-facial communication will be presented. Finally, community networks, teachers' use of telecommunications, and research on uses of telecommunication in mentoring pre-service teachers are presented.

Teacher Orientation and Socialization

Student teaching has consistently been identified as the most significant element in the teacher preparation process. It provides great opportunity to apply theory to practice in a more intense and prolonged situation than any prior preparation activity. However, teacher-training institutions have not been able to prepare beginning teachers adequately to experience the full responsibilities of teaching (Dell, 1979). Many of the problems that beginning teachers encounter are due to a lack of mediated entry into the profession. Sweeney and Whitworth (2000) reported that educational systems are built around invalid assumptions about entry into the profession. These assumptions include:

a) that a pre-service preparation program equips teachers with the kind of knowledge and skills to be effective;
b) that it is permissible for beginning teachers to "learn to teach" in the unsupervised environment of their first classrooms;
c) that teacher training begins with a university program and ends with certification;
d) that large group in-service can provide assistance to teachers struggling with unique problems; and

e) that the structured assessment of teachers can, in and of itself, insure quality teaching.

Ryan (1974), in his research on the first year of teaching, reported that due to the inadequate introduction to the profession and insufficient support for novice teachers, 30% of personnel trained for teaching never enter the profession; one out of five teachers don't expect to teach five years later; and 12% of trained teachers leave the profession each year. The Study of Education for Educators (SEE) conducted by Zhixin (1990) provides additional insight into the problem of teacher socialization and orientation based on a survey of 29 teacher-training institutions. Of the 101 people interviewed, 45 were graduating teacher candidates, 40 were teacher education faculty, and 16 were practicing teachers in schools where the candidates were student teaching. The results showed that 25% of the students never formally met other groups of students in their training program and 17% never met their fellow students informally outside of regular classes. This lack of peer culture interactions among teacher candidates is due to the structure of the training institutions. Student teachers in these institutions did not have collegial interactions in their foundations and their methods courses. They are dependent on their own individual beliefs, skills, knowledge, motivation, and initiative (Petersen, Hausafus, & Schultz, 1990). In addition, teacher training institutions or programs do not seem to promote the development of peer culture. As a result, many future teachers are socialized into the belief and practice that teaching is an isolated and individualistic activity rather than a shared enterprise.

Teacher Isolation

Substantial research on isolation and alienation of teachers has been documented in the reports of the National Commission on Teaching and America's Future. The prevailing

culture and structure of the schools, and the typical school schedule, restricted teachers to the walls of their classrooms and prevented them from usual professional dialogue with colleagues about problems and concerns (Court, 1999; Dillon, n. d.; Fisher, 2000; Watts & Castle, 1992).

There are a number of studies on the professional isolation and alienation of teachers (Carley, 1989; Court, 1999; Fisher, 2000; Merseth, 1992; Moran, 1990). Too often, teachers lack connections to colleagues with similar interests, responsibilities, and challenges. Sharing pedagogical strategies and content with peers or receiving constructive criticism or objective advice are nearly non-existent in the teaching profession (Court, 1999; Moran, 1990). For this reason, teaching has been referred to as a "lonely" and "isolated" profession (Bodzin & Park, 2000; Fisher, 2000; Merseth, 1992; Zhixin, 1990).

Studies indicate that the problem of teacher isolation is grounded in the culture of the profession and the conditions of the schools as a workplace (Fisher, 2000). Research conducted at the University of Central Florida provided further evidence to this problem (Carley, 1989). In this study, 196 teachers enrolled in the College of Education graduate program were surveyed. The sample consisted of 87 high school teachers, 73 elementary teachers, and 36 junior high teachers. Over 80% of the teachers revealed that their classrooms were a world unto itself, disconnected from other classrooms. They seldom visited other grades, other schools, or other teachers; they seldom reflected on and discussed their experiences with their colleagues. In some studies, as many as 45% of the teachers reported no contact with each other during workdays, and another 32% said there were infrequent contacts with peers (Little, 1982). In other words, many of their good works went unnoticed. These findings show that many teachers feel isolated from colleagues.

Teacher isolation is a serious malady infecting many schools. The professional ethic that it is wrong to intrude on a colleague's turf taught in most teacher educational programs inhibited many teachers from collectively sharing their experiences (Rosenholtz & Kyle, 1984). There is a related belief that to seek advice from other teachers is to admit a lack of teaching competence. In other words, teachers do not generally approach each other with requests for, and offers of, assistance because those actions suggest an aura of superiority or inferiority. The significance of professional dialogue cannot be overestimated. Without professional dialogue, there is little chance for teachers to develop common goals and means to attain them. Most often, beginning teachers defect from teaching or absent themselves from schools as a result of their felt professional isolation.

For those who continue to teach, the story may have a troubling ending. For beginning teachers, teaching becomes a journey with no map to guide them. Novices searching for excellent teaching models in their isolated settings fall back on memories of favorite teachers from their teacher training institutions. Sometimes, they enact a live-and-let-live professional protocol. Likewise, veteran teachers feel stuck or professionally stifled with no new input for professional development.

Moran (1990) and Ryan (1974) assert that the problems of beginning teachers are turbulent, frustrating, humiliating, confusing, and painful. Professional isolation, conflicting philosophies, heavy workload, and lack of access to needed materials cause many teachers to leave their jobs (Sosa & Gonzales, 1993). Teachers do not have the ability or access to professional resources to aid them in coping with their problems (Dell, 1979). This is compounded by the schools frequent supervision that feels like surveillance and evaluation that feels like reading of charges (Moran, 1990). In other words, provisions are made to

evaluate novice teachers, but no provisions are made to help them in their first year of teaching. Studies indicate that teachers in isolated settings are responsible for running their classrooms, and they are accorded and accord to others the full autonomy to do so (Rosenholtz & Kyle, 1984).

Furthermore, novice teachers in isolated settings are reported to teach by trial and error. Teachers' individual growth and development rests on their own ability to detect problems and find solutions. They develop their teaching repertoire through on-the-job experience. Moran (1990) asserts that the first months and years of teaching are full of pain, confusion, loneliness, and humiliation. The daunting challenges of first teaching assignments, especially classroom management and curriculum planning, most often lead unsupported beginning teachers to adopt practices contrary to the educational philosophies and instructional strategies learned in pre-service education. In traditional student teaching internships, pre-service teachers are often disconnected from their peers in other classrooms. Separated by geographical barriers, pre-service teachers interact sporadically with university faculty and rely almost exclusively on cooperating teachers for guidance, information, and support (Bodzin & Park, 2001). Teacher isolation is rooted in the pre-service preparation, a training that differs from other professions where novices learn by interacting not only with their colleagues but also with experienced professionals in the field. Comparing teaching with other professions, a director of one teacher credentialing program (cited in Jackson & Davis, 2001 p. 105) wrote,

> In no profession other than teaching are inexperienced and untried beginners left to their own devices and allowed to have autonomous responsibility to make substantive professional decisions. In law, the approach to a complex legal issue is either devised

> or carefully reviewed by a senior partner; in medicine, the treatment of a puzzling medical condition directly involves the consultation and judgment of the chief staff; ... and in police work, the rookie cop is paired with an experienced, streetwise officer. In each of these organizational settings, less experienced individuals are under the direct daily guidance, tutelage, and supervision of more experienced and successful mentors. Differentiated levels of decision-making authority based on experience and success are taken for granted. This is the case even when the new practitioner has completed a formal pre-service training program.

Reports indicate that two-thirds to three-fourths of teachers leave the profession in their first four years as a result of professional isolation (Columbia Group, 2000; Regan, 2001; Rosenholtz & Kyle, 1984; Schwartz (cited in Hines et al., 2000)).

Computer-Mediated Communications

Recent developments in computer telecommunications technology have emerged as a means for providing support to teachers. Telecommunications have made possible computer-mediated communication such as e-mail, listservs, electronic bulletin boards, and Web-based forums. A fundamental advantage of computer networking is the flexibility it offers. Geographical and time constraints are overcome because messages can be sent at any time of the day and from any place.

Computer telecommunications technology has tremendous potential to facilitate teachers' learning and professional development. Computer telecommunications can serve as a vehicle for professional development by providing information on educational issues and

trends. It can also provide support and assistance through the sharing of ideas and concerns (Zimmerman & Greene 1998), and can help overcome feelings of teacher isolation.

The term computer-mediated communications (CMC) is used interchangeably with other terms such as electronic seminars, computer conferencing, online discussion, and electronic bulletin boards (Carley, 1989). CMC refers to the use of a network of microcomputers linked to a central host by means of telephone lines, local networks, and special data networks. It includes a variety of facilities ranging from electronic mail to accessing remote databases. It also involves delayed-time, text-based messages and may include a variety of facilities ranging from electronic mail to accessing remote databases (Bodzin & Park, 2000). It is fundamentally a many-to-many communication tool that structures information exchange and group interactions. The participants in most cases communicate with a host computer using modems and personal computers. They enter the message(s) on their computers that are transferred over phone lines and saved on the host for other users to access (Merseth, 1992).

According to Harasim (1990), computer conferencing supports "collective intelligence" and meetings of minds through the topical structure of the system. This structure provides the shared space essential to group interaction: all members of an online group can read the same messages about a particular topic in the same order. Each member or participant of a conference has access to each message for reading and response. The shared electronic area enables a dialogue to take place. The conferencing software also generates a record of the interactions that take place. This record becomes a common resource for later manipulation, reference, and further discussion.

The main characteristics of CMC include:

- Asynchronous communication (a method of sending and receiving information to be read at the user's convenience);
- Virtual space for interpersonal interaction, social networking, and changing roles and dimensions of students, teachers, curriculum, and institution;
- Topical conference areas for group discussion with a permanent record of interactions;
- A technological environment combining telecommunication systems and computer networks to solve problems of access, quality, and productivity; and
- 24-hour accessibility, independent of the user's location, and fast mode of communication (Bodzin & Park, 2000, p. 49).

With computer-mediated communications, time and geographical constraints are overcome because messages can be sent any time of day and from any place. The fact that the network is available 24 hours a day greatly increases the frequency of interactions among participants (Casey, 1994). Additionally, the accessibility of the network from many locations is well suited for participants whose activities are no longer restricted to the university campus (Weir, 1992).

Educators' electronic communities are distinguished by the social learning environment they provide. These networks serve as a vehicle for teachers to engage in reflective discourse sharing concerns, asking focused questions, seeking common meanings in teaching pedagogy, and constructing ideas in collaboration with peers. Electronic networks present a prime opportunity for teachers' collaboration. Teachers join a community of learners where the network is the framework for cooperative learning (Merseth, 1992). Networks provide a forum to reflect on practices, to share teaching and learning experiences,

and to develop new curricula ideas. Veteran teachers serve as models for other teachers by sharing particular aspects of their teaching experience.

According to Riley (2000), computer-mediated communications help teachers use the internet to "reach out" to other teachers globally. Riley identified many benefits of having pre-service science teachers engage in an electronic community.

- The forum provides a means for sharing and discussing common experiences over geographical distances.
- The forum provides a way for pre-service teachers to receive help and support for the problems and tensions they experience during their student teaching experiences.
- The forum also serves to facilitate communication channels between the student teachers and their university instructors.
- The open structure of the computer-mediated communication is an important factor in the free exchange of ideas, questions, and other types of dialogue among teachers.
- Both beginning and experienced teachers use bulletin boards as an open forum to post questions pertaining to pedagogical issues and personal issues. The forum was also used to exchange professional information such as teaching strategies and curricular material.

Similarly, Carley (1989) reported the following advantages of electronic communications.

- Teachers can ask questions at their own convenience without scheduling an appointment, playing "telephone tag," or waiting in line to meet another educator.
- The system provides a much less threatening method for asking questions, answers can be more precise, and members have more time to think about them.

- Faculty members become aware of types of problems teachers (especially novices) encounter in their teaching and thus, can modify the university curriculum to alleviate or eliminate these problems.
- The system provides convenient network space for the participants to engage in dialogues over geographical distance. This support seems to decrease the feeling of isolation among participants who were teaching in schools without peers.

The network offers help and support for problems and tensions teachers experience in their classroom teaching. The major element of anonymity provided by the web environment allows teachers to discuss issues that they may not be able to talk about with school colleagues – lack of confidence in teaching a subject area, or concerns about an approach to specific content area (Honey, 1998; Reid, 1994). The online communication provides a unique community of peers who can listen, offer guidance, and support without the criticism that many teachers encounter when sharing their concerns with school building peers (Honey, 1998). Interacting openly, teachers can practice using new conceptual tools they are acquiring in their discussions. In these groups, feedback can be immediate as group members articulate their changing ideas and opinions. Members are exposed to widely divergent points of view, lifestyles, and belief systems. Synchronous communication adds the excitement of interacting with others in real time and builds a sense of social presence (Aoki, 1995). This sense of involvement and engagement can be critical in building a sense of community among participants (Reid, 1994). Synchronous communication allows teachers the time to consider comments and discussion topics posted by peers and content experts, and encourages thoughtful and reflective responses that can be posted at any time and place of convenience of the individual (Honey, 1998).

Merseth (1992) identifies the following advantages of electronic networks:

- Offer the assurance that resources are close at hand. Members on the network seek advice; ask questions; and offer ideas, reactions, and suggestions. These network conversations create an atmosphere of support, collegiality, and shared professional growth.
- Create a supportive community of learners who actively consult with one another to minimize problems.
- Assuage feelings of helplessness and embarrassment. Electronic discussion groups provide a forum where teachers' inadequacies can be safely shared. Hearing from other teachers helps members realize that their feelings and questions are not unusual.
- Denote nonjudgmental and safe haven where teachers can make requests for assistance and advice.

In summary, online forums offer a number of advantages to educators: access from the teacher's choice of location eliminating scheduling conflicts; 24-hour access to other people and resources despite geographical distance and isolation; allows user time to compose responses; access to experts in a specific field; allows for self-paced learning; promotes collaborative learning and can use peer review/support activities; facilitates course management (e.g., advising); cultivates multiple perspective approaches; provides a means for professional development; facilitates mentoring activities; relatively fast communication channel; often fosters less inhibited behavior; and has relatively low social context cues (Berge, 1997; Honey, 1998).

Non-Facial Communication

Computer-mediated communication is a non-facial (text-based) aspect of communication. With computer-mediated communication there is an absence of social, contextual, and nonverbal cues that normally regulate and influence social interactions (Berge, 1997; Harasim, 1990). In computer-mediated communication, information about individuals' race, age, physical appearance, and facial expressions, body language, voice dynamics, job titles or positions, and social status are all absent, which in other communication contexts interfere with group interactions. This lack of social context cues available on a computer network can allow individuals to experiment with different roles and identities. Berge (1997) explained that because computer conferencing provides a text-based environment with low levels of social context cues compared to face-to-face interactions, it could have both negative and positive consequences. Asynchronous group learning can reduce competition among participants. There is no concern that time restrictions or turn taking will limit expression or opportunities to speak. More assertive individuals do not interrupt participants who require additional time to present their ideas. Text-based communication has no social or physical cues to distract one from the cognitive content of a message (Harasim, 1990). The focus of the message is on the content and not the presenter.

Asynchronous collaboration also has its limitations. Communication anxiety (the feeling of speaking into a vacuum) can occur when a participant receives no immediate response to ideas and comments (Feenberg, 1987). Physical cues such as facial expressions, voice intonations, and gestures are eliminated. Participants may also feel inhibited within online discussions because their words will be preserved in a database (Davie & Wells, 1991; Harasim, 1990). Text-based communication preserves a permanent record of the dialogue.

This permanent record serves as a challenge to all participants to be accountable for their words, and to say precisely what they mean (Davie & Wells, 1991). By encouraging responsibility for one's words, the transcript encourages awareness that words are extensions of self. It also requires substantial typing skills to communicate effectively. Members who have no typing skills, time to reflect, frame questions, or compose responses may not participate.

Community Networks

Electronic community networks are virtual communities of users who share experiences, problems, new ideas, and resources. A number of researchers have described electronic networks for teachers as educational communities where spaces, social systems, and the sense of belonging together are components of the community. According to Lieberman and McLaughlin (1992), networks constitute professional communities that transcend a particular workplace and draw teachers from many sites. Davie and Wells (1991) described community as the feeling of a supportive group of individuals working together to make meaning, combat mutual isolation as distance learners, provide support for and challenge to one another, and learn from one another. Lemke (1989) describes communities as systems whose types can evolve because the material base of their [cultural] practices can preserve information, accommodate variability, and transmit information to future communities. Electronic social interactions are mediated through text that appears on a monitor screen, rather than through face-to-face interaction. When members of a community are united by a common purpose and engage in mutual activities, they become a

community of practice. In order for a professional community to develop, teachers must feel a sense of belonging to a given group.

Electronic community networks provide opportunities for teachers (novices and veterans) to reflect collaboratively on their teaching practice. Also, networks offer curriculum and emotional support and a place to reflect on teaching issues with other teachers in the field (Casey, 1997; Merseth, 1992; Schlagal et al., 1996). Harasim (1990) explained that due to the openness of the electronic networks, all members have equal opportunity to contribute and it is much less likely for any group member to dominate the group discussion. The choice of when to contribute to the discussion is the sole discretion of the participants. By engaging in electronic community networks, teachers gain an understanding of how technology can promote collaboration and sharing of ideas (Carley, 1989). Electronic communities offer an environment to interact personally, socially, and professionally by sharing thoughts, seeking advice, and sharing experiences with successes, problems, and failures over geographical distances (Harasim, Hiltz, Teles, & Turoff, 1995). This sharing of experiences appears to reduce isolation barriers that pre-service teachers often encounter during their student teaching experiences and provide a support network for all teachers in the classroom (Bodzin & Park, 2000). The veteran teachers act as mentors for the new teachers providing them with support, guidance and resources for managing classroom duties (Diehl et al., 2000). The new teachers can also communicate with each other and discuss or share problems and concerns. Ideally, the network becomes an electronic support system for new teachers, connects them to the world and to their profession, and allows them to be collegial and reflective and to share problems with assurance of confidentiality for professional development (Fisher, 2000).

Teachers' participation in electronic community networks can provide a channel for receiving validation about their work, motivation to challenge existing practices, forums for ideas, sharing and learning from one another, and exposure to innovations in pedagogical practices (Lieberman & McLaughlin, 1992). Teachers can collaborate with advisors and other experienced educators to learn about new teaching strategies. Caggiano, Audet, and Abegg (1995) state that there are three types of active network participation in an electronic community network: putting forward topics for discussion, posting messages in a discussion, and reading messages. Lieberman and McLaughlin (1992) contend that the electronic network provided teachers with intellectual stimulation and supported teachers' professional development by engaging them in varied activities such as curriculum workshops, leadership institutes, conferences, and providing a community base that was different from one's local community.

Even though some claims have been made concerning the benefits of networks, there has not been sufficient systemic analysis of educators' use of networks to support these claims or warrant the allocation of resources to such endeavors (Anderson & Harris, 1997; Honey, 1998; Office of Technology Assessment, 1995). Some studies have analyzed teachers' discourse on bulletin board systems (or online forums) in an attempt to comprehend and explain the nature of a professional community of teachers linked together through a telecommunications network. Lehman, Warfield, Palm, and Wood (2001) categorized mathematics teachers' online inquiry into these categories: reporting of teaching practice, inquiry into teaching practice, reporting of students understanding, inquiring into students understanding, procedural or informational, social, technology, and error. Similarly, Ruopp, Gal, Drayton, and Pfister (1993) categorized the discourse on the LabNet bulletin board

systems into the following categories: teaching activities, teaching resources, planning curriculum and teaching, technical assistance, administration, and personal. Cagianno et al. (1995) categorized the discourse that appeared on bulletin boards into the following categories: planning events, interpersonal thoughts, talk between two or more people, sharing ideas and advice (resources), sharing experiences or reflections about experiences, and inquiring or stating school needs.

Teachers' Use of Telecommunications

Classroom teachers use telecommunications for a number of reasons. The most frequent activities were those used for collegiality and professional growth, collegial exchange, including sending e-mail to colleagues and posting questions or exchanging ideas on forums and bulletin boards (Honey, 1998; Lieberman & McLaughlin, 1992). Benefits of network participation include exchanging ideas about projects, social exchanges, and discussing general teaching approaches (Lehman, Warfield, Palm, & Wood, 2001). Increased use of outside resources is a major benefit teachers perceive from implementing telecommunications resources into their professional development (SRI International, 1997). A study of K-12 teachers conducted by Davenport (1995) indicated that 33.8% of the survey respondents used the internet for classroom activities and 60.6% used it for professional development, including research for personal use, exchanging ideas with other educators, and information retrieval.

The use of telecommunications networks by teachers can provide convenient opportunities for reflection and conversation, moral support, and assistance in breaking down barriers that teachers experience in their classroom settings (Lehman, Warfield, Palm, &

Wood, 2001). DiMauro and Jacobs (cited in Lehman et al., 2001) found that teachers who were members received peer-peer support from other members of the LabNet network. In addition, even teachers who had low active participation rates on networks also benefited professionally by reading the postings of others.

A number of factors that influenced the ability of participants in a telecommunications network to get online include priorities, learning style, expectations, and the level of motivation or obligation to use the system regularly (Anderson & Harris, 1997), the user's level of computer and technology anxiety, computer networking experiences, motivation (Rogan, 1995), and external factors such as constraints in terms of time, instruction, and support from one's school system (Weir, 1992). Unless time is built into the school day, or educators have access to telecommunications equipment at home, telecommunications is most likely not to be used by an educator (Rogan, 1995; Schrum, 1995). Educators must have resources if they are going to begin to use and incorporate information technologies into their professional and instructional activities. Other technical logistical issues in shaping network adoption and use include user friendliness, system reliability, and technological infrastructure (Eurich-Fulcher & Schofield, 1995; Kagima, 1998). A significant amount of time and effort seems to be required for teachers to learn about and use telecommunications (Carley, 1989; Rogan, 1995). Teacher and classroom time is limited. School schedules have traditionally been rigid and structured, making it difficult for teachers to find adequate time during the day to engage in networking related professional development activities (Court, 1999; Fisher, 2000).

Uses of Telecommunications in Mentoring Pre-service Teachers

Many studies have been conducted on using telecommunications for mentoring pre-service teachers. These studies involve using e-mail messages between mentors and protégés (Bull, Harris, Lloyd & Short, 1989; Carley, 1989; Casey, 1994, 1997; Schlagel, Trathen, & Blanton, 1996; Single & Muller, 2000), electronic discussion groups (Lehman, Warfield, Palm, & Terry, 2001; Merseth, 1992; Waugh & Rath, 1995), and bulletin board systems (Thompson & Hamilton, 1991).

Carley's (1989) evaluation of an electronic communication network for student teachers at Iowa State University revealed that student teachers appreciated the system for facilitating their communication with peers and helping them feel less isolated during their student teaching. The supervisors and faculty members viewed the system as an opportunity to improve communication between student teachers and university personnel, develop new methods of supervising, and assist student teachers at their times of need. In addition, the faculty supervisors believed that the system was a useful tool for mentoring and learning about problems encountered by student teachers in the field and also a help to student teachers to learn how to use technology.

Casey's (1994, 1997) study on pre-service teachers using Teacher-Net at California State University indicates that student teachers using telecommunications communicated more often with their university supervisors than those without telecommunications. The e-mail approach enabled students to be in regular contact with their peers and supervisors. Casey reported the following benefits to pre-service teachers using a telecommunications (e-mails) network:

- Increased time to reflect on what they were learning,

- Increased feeling of rapport with and support from their university supervisor,
- Decreased feeling of isolation and increased team support,
- Easy access to university professors and other supervisors,
- Higher self-esteem as a result of mastering teaching and positive feedback through e-mail messages,
- Increased pride in creation of professional portfolios and documents,
- Increased self-esteem due to mastering technology,
- E-mails help reflect on day-to-day teaching, promote deep understanding of teaching and written conversation of teaching experiences,
- And increased knowledge and use of information access and retrieval.

A nationwide electronic mentoring study of engineering students, related science students, and math students paired with industry professionals revealed that use of e-mails provides a flexible communication environment independent of time and space, allow for asynchronous exchanges, and provides attenuation of status differences that facilitated development of relationships (Single & Muller, 2000). Also, the Curry School of Education at the University of Virginia created the Teacher-LINK system in 1984 to study the process of establishing a network to support the student teaching process (Bull, Harris, Lloyd, & Short, 1989). This study reported that pre-service teachers used Teacher-LINK as a communications link to their university instructors during their field experiences using electronic mail (e-mail) and as an electronic conferencing system. In addition, Merseth's (1992) study of first-year teachers participating in the Beginning Teacher Computer Network (BTCN) showed that first year teachers used electronic telecommunications for personal, emotional, and technical support. Further, the results of a study by Schlagel, Trathen, and

Blanton (1996) at Appalachian State University point to the structure of e-mail use as an important factor in eliciting spontaneous exchanges of ideas.

The pre-service teachers in Waugh and Rath's (1995) study perceived that networks could enhance teacher training and support their work in the schools by using them to access resources and communicate with others. Waugh and Rath's study on group interactions and students' questioning patterns in a university course using an electronic network showed that students posted questions predominantly concerned with technical aspects and network strategies more than personal questions. An exploratory investigation of pre-service English teachers using telecommunications during their methods instruction and student teaching reported that electronic mail was an asset for meeting course requirements and maintaining contact between students and instructors (Thomas, Clift, & Sugimoto, 1996).

The Electronic Education Exchange (EEE) project conducted by Thompson and Hamilton (1991) at Iowa State University revealed that merely making a telecommunication system available to the student teachers was not enough to get students to use the system. In this study, each student was assigned a partner (another student teacher who was teaching at about the same grade level) and a faculty member. Special conferences were also initiated on this system purposely to provide a place on the system where student teachers could talk about particular ideas in the areas of classroom management and parent interactions. Thompson and Hamilton concluded that further structured intervention might be necessary to encourage student teachers to communicate with faculty and experienced teachers in a telecommunications network.

Although teacher telecommunications networks continue to be established around the country, the published descriptions of these systems are general and often do not include

specifics about the use and implementation of these systems. Further, the capabilities of electronic networks seem a natural solution to help address teacher isolation, although some systems designed for this purpose are not actively used (Thompson & Hamilton, 1991). An extensive review of literature of family and consumer sciences teachers' use of computer-mediated communications has been unreported in the literature. Because the World Wide Web is now easily accessible to teachers at home and in their teaching placements, it is important that research be conducted to explore the use of electronic bulletin boards, as a new technology among FCS teachers.

CHAPTER 3. METHODOLOGY

This chapter discusses the methodology used to gather and analyze data. It describes the research design, population and sample selection, survey instrument development, data collection procedures, and data analysis.

The overall purpose of this study was to investigate current uses of electronic bulletin boards by family and consumer sciences teachers. More specifically, this study was designed to answer the following questions:

1. What are the characteristics of family and consumer sciences teachers who use computer-mediated communication networks?
2. What are the frequencies of message threads on the electronic bulletin boards?
3. What is the content of the messages of interaction?
4. What topics promoted the greatest exchange of ideas?

Research Design

This study employed a pluralistic approach (qualitative and quantitative methods) using interpretive research design. The pluralist approach obtains data that help to understand and crystallize the problems that might otherwise be overlooked (Burns & Bush, 2000). In interpretive research, an attempt is made to obtain data that produce well grounded, rich descriptions, and explanations of processes in identifiable local contexts (Frey, Botan, & Kreps, 2000).

The study explored the types of messages that are being communicated on three family and consumer sciences electronic bulletin boards (North Carolina family and consumer sciences, FCS work and family, and FCS teachers). The communication

transcripts (message threads) were downloaded and read through several times to identify the types of information or discourse contained in the transcripts using constant comparative method (Creswell, 2002; Glaser, 1978). This method guided the development of coding categories of the message threads. A family and consumer sciences professional reviewed the message categories as a measure of reliability. The study also used an online survey to gather additional information from selected informants ($n = 12$). This survey sought information on the attitude, perceptions, and experiences of family and consumer sciences teachers who are very active participants in the electronic community. The survey items consisted of Likert-type scale, closed-ended (quantitative), and open-ended (qualitative) questions. A need for a method that would be convenient for the informants to respond adequately was considered because they were requested to report on their perceptions of, and experiences with electronic bulletin boards. An e-mail survey was deemed the most appropriate for gathering this data. The findings of this study will be of great interest to this group and they should therefore have been eager to complete the survey.

Population and Sample

The target population was family and consumer sciences discussion groups on the World Wide Web (WWW). Several such discussion groups are available for free membership through Yahoo (http://www.groups.yahoo.com). The criteria for a Yahoo group to be considered for this study consisted of the following: Family and consumer sciences teachers' Yahoo discussion groups (e-groups), with 20 or more members, registered on the World Wide Web, and posted messages over several months (three). Based on these criteria, three family and consumer sciences e-groups were selected. These were North Carolina

family and consumer sciences (NCFACS), FCS work and family (FCSWF), and FCS teachers (FCST). In addition, 12 informants (a moderator and three other members of each group) were selected using non-random purposive sampling (Fraenkel & Wallen, 1996) to provide unique insight into the electronic bulletin boards being studied. The informants were those who posted or responded to 10 or more messages on the electronic bulletin board.

Instrumentation

Three family and consumer sciences electronic bulletin boards were used for the study. The electronic bulletin boards were established and maintained on Yahoo website (http//:www.groups.yahoo.com). The electronic bulletin boards were created to facilitate communication among family and consumer sciences teachers nationwide. The members could utilize almost any kind of networked computer to connect to the electronic bulletin boards. The only requirement was that participants were registered members and had a user name and password. When members log on to electronic bulletin boards, they are presented with a list of messages and reply titles. Each message displays the author of the message, the subject, the date, and time that the message was posted on the electronic bulletin board, with the most recent message listed first. Each message and/or reply title is a hypertext link. The user clicks on a message or reply title to view the posted message. The software also enables the user to read successive replies to the original message. The electronic bulletin board was selected because it is available at no monetary cost and the software is easy to use.

The supporting survey on the other hand was developed by the researcher in consultation with a computer technology specialist in the College of Family and Consumer Sciences at Iowa State University. The instrument was developed to reflect attitudes,

perceptions, and experiences of using electronic bulletin boards following analysis of scales developed by Bodzin and Park (2000) and Lehman, Warfield, Palm, & Wood, (2001).

The survey consisted of four parts. Part A sought information on attitude and perceptions of informants' use of electronic bulletin boards. Part B solicited information on efficacy of electronic bulletin boards. Part C investigated teachers' involvement with the board. The last part of the survey contained professional and demographic characteristics of the respondents. The data were gathered through private e-mail.

To establish content-related validity, the survey items were examined by a faculty member, a member of the program of the study committee, and another family and consumer sciences professional at Iowa State University. According to Frey et al. (2000), evidence of validity is the extent to which the content measures what it was designed to assess. The suggestions of the experts were considered in revising the survey. Additionally, modifications of the Likert-type scale were made. The undecided option of the responses was removed leaving only four options: Strongly Disagree, Disagree, Strongly Agree, and Agree. This was done to preclude equivocation and to encourage participants to make a choice (DeVellis, 1991). The survey was published on a website and pilot tested. Four family and consumer sciences professionals were selected through convenience sampling to participate in the pilot study. Of the four surveys e-mailed, there were no responses (0%). The problem was "technical" and was corrected by the family and consumer sciences computer technology experts at Iowa State University.

The researcher pilot tested the survey again with three individuals selected through convenience sampling. Based on the feedback from the participants, the researcher revised the instrument to reflect those concerns before sending it to the informants.

Role of the Researcher

The researcher in this study was a member of all the e-groups surveyed. The process of becoming a member took longer than anticipated (more than a month). Once membership was approved, the researcher could log on to the electronic bulletin boards any time to post, read, or download messages. She was responsible for downloading the message threads (interaction patterns of teachers) over one school year (12 month period). Messages in the archives were also downloaded.

This study was conducted as a blind study. The family and consumer sciences teachers in the selected e-groups did not know that their message threads would be used as data in the research study. Because membership and participation in the discussion groups is voluntary, no harm or coercion was involved.

Institutional Review Board

The Association of Internet Researchers is concerned about protecting the identities of on-line research participants, especially those in public chat rooms (Young, 2001). In cyberspace there is a greater accessibility of information on individuals, groups, and their communications that could jeopardize the privacy and confidentiality of human subjects. In light of these concerns, ethical guidelines for using human subjects in other research contexts were recommended.

The Iowa State University Institutional Review Board granted the approval to conduct this study (Appendix A). The committee of the Institutional Review Board gave the permission to carry out the research after reviewing data collection procedures and survey instruments, and knowing that appropriate provisions were employed to protect the

anonymity and confidentiality of the informants (human subjects). In addition, the researcher completed Human Subjects Research Assurance Training and received a certificate of completion from the National Institutes of Health (NIH) Office of Human Subjects Research (Appendix B).

Data Collection and Analysis

In this study, the message threads on the electronic bulletin boards were downloaded over one school year (12- month period, starting from August 2000 to July 2001). This was possible because each bulletin board created a message archive where members could retrieve messages on a monthly basis. Supporting data were gathered from 12 informants selected to complete a survey through private e-mail about the attitude, perception, and experience of bulletin boards

The data collection process was guided by Glaser's (1978) steps in the constant comparative method of developing theory and Creswell's (2002) zig-zag process of constant comparative procedures. These were: a) gather data, b) explore data by reading through to obtain a general sense of the data, c) look for key issues, memoing ideas, recurrent events, or activities in the data that become categories of focus, d) collect data that provide many incidents of the categories of focus with an eye to seeing the diversity of the dimensions under the categories, e) compare incidents in the data to other incidents, incidents to categories, and categories to other categories f) write about the categories being explored, describe and account for all the incidents in the data while continually searching for new incidents, g) work with the data and emerging model to discover basic social processes and relationship, and h) engage in sampling, coding, and writing as the analysis focuses on the

core categories. Although the constant comparative (including the zig-zag) method described above involves a progression of steps, what actually was done proceeded non-linearly, and the researcher kept comparing codes and categories to incorporate more data collection and coding.

Throughout the study, the messages were read and reread in order to "ground" categories in the data or develop coding categories. Content analysis was utilized to analyze the data. It focuses on identifying the patterns and major themes contained in the communication of mass mediated texts. Frey, Botan, and Kreps (2000) have pointed out that content analysis enables researchers (coders) to unitize and categorize the types of messages exchanged during an interaction. Knowing the types of categories informs researchers about what is being communicated and knowing the number of units in each category tells about how often these types of messages are communicated. Both types are useful for describing, understanding, and critiquing the content of the communication being studied (Frey, et al.).

During the 12-month period of the study, a total of 691 messages were posted to the three bulletin boards. The full text of the message threads were entered into the QSR NUD*IST 4 software system for data analysis. This software package assisted the researcher in monitoring, managing and coding the family and consumer sciences teachers' messages on the bulletin boards. In this content analysis of the data, it was often important to record discoveries, and thoughts about the data. NUD*IST allowed the researcher to do this during the data analysis and also facilitated modifying the coding categories and adding new ones as the need arose (QRS NUD*IST 4 user guide, 1997). Basic descriptive data were gathered for each board:

- Number of message postings for each bulletin board.

- Number of peer responses in thread (message).
- Number of messages without replies.
- Time of day of each message posting was noted. School session daytime hours (7am - 5pm), school session evening hours, and weekend hours.

Initial data categories or ideas for coding the content of the messages posted on the electronic bulletin boards were drawn from literature on computer-mediated communication and the title (subject line) of the messages posted. The researcher examined the data (message threads) in detail by reading the messages several times before breaking them into parts. Writing memos in the margins assisted in this initial process of developing categories. In the coding, many messages on the electronic bulletin boards were assigned to more than one category. The data were coded and categorized by evaluating each message based upon the type of information or communication contained in the message thread. By using the constant comparative method, the initial coding schemes were modified. The emergent categories were assigned to identify the types of messages and interactions taking place.

In the end, each bulletin board message was coded using the following content analysis scheme:

1. Social (SCL): Messages pertaining to sharing general information, personal ideas, (self introductions), unsubscribe.
2. Family and consumer sciences pedagogy (FCSP): Questions or comments relating to teaching family and consumer sciences content including lessons, program standards, curriculum planning, and evaluation.
3. Nature of teaching (NFT): Message postings relating to classroom instruction, methods or management in general, and student assessment.

4. Resources (RCS): Messages in which members share resources including text books, websites, software (video, CD-ROM), instructional strategies, or virus warnings and protection websites.
5. Professional development (PRD): Messages relating to certification examination (Praxis), continuing education (graduate credits), job announcements, conferences, and association memberships.
6. Inspirational (IPL): Messages telling jokes (humor), giving encouragement, celebration, and words of faith.
7. Reflective discourse (RFD): Evidence of reflective discourse messages such as asking focused questions or seeking common meanings in teaching practice.

Each message was classified using one or more of the categories. Messages were examined for evidence of any broad patterns and statistics tabulated for different types of message categories (frequency and percentage of emergent categories).

Another family and consumer sciences educator who worked independently reviewed the coding categories and coded one-fifth of the messages as a measure of coding reliability. Second-rater reliability coefficient was .94 indicating high index of accuracy (consistency) according to Holsti (1969) formula:

$$\frac{2M}{N1 + N2}$$

where M is the number of message threads (coding decisions) on which the researcher and the second-rater agreed in their coding (classifications) and N1, N2 each represent the number of messages coded by the researcher and the second-rater (judge).

Interpretive analysis was also used to discover the dynamics of the electronic bulletin board discussions. According to Young (2001, p. 2), the Association of Internet Researchers stated, "If what you're studying is how personalities expressed themselves, then if you change the pseudonyms, you dilute the flavor of your reporting." Young stated that publishing the pseudonyms would not protect anonymity because the identity of participants in chat discussions could be determined from the archives. Because the data for this research were electronic bulletin board communications, pseudonyms of verbatim quotes reported (in italics) to illustrate the categories or patterns of interactions of the message threads were removed to protect confidentiality and provide anonymity of the electronic bulletin board members. Additional data from the informants were used to help interpret the use of electronic bulletin boards in this study.

CHAPTER 4. FINDINGS AND DISCUSSIONS

The overall purpose of this study was to investigate current uses of electronic bulletin boards among family and consumer sciences teachers. The following research questions guided this study and will be used to organize the findings and discussion.

1. What are the characteristics of family and consumer sciences teachers who use computer-mediated communication networks?
2. What are the frequencies of message threads on the electronic bulletin boards?
3. What is the content of the messages of interaction?
4. What topics promoted the greatest exchange of ideas?

General Information

The sample consisted of three family and consumer sciences electronic bulletin boards (e-groups) with 20 or more members selected from all FCS e-groups on the World Wide Web. The selected groups were North Carolina family and consumer sciences (NCFACS, n = 164), FCS work and family (FCSWF, n = 51), and FCS-teachers (FCST, n = 95). In addition, supporting data were gathered from 12 informants. One hundred percent (12 informants) returned the e-mail survey but one respondent did not provide complete data from the survey.

Characteristics of Family and Consumer Sciences Teachers

In general, it was difficult to gather information on the characteristics of teachers using telecommunication networks in this study. This is likely because membership or participation in electronic community was public and voluntary and members were not

required to make available such information. Moreover, the electronic bulletin boards were focused on FCS teachers sharing teaching ideas and experiences and also providing support for one another. These findings are similar to those reported by Bodzin and Park (2000), who studied SciTeach Forum on the World Wide Web. In that study, information about each individual's race, age, educational attainment, and social status or position was absent. Bodzin and Park explained that lack of such social context cues available on computer-mediated communications, which in other communication contexts interferes with group interactions, allow individuals to experiment with different roles and identities. In addition, lack of such cues allows participants to be collegial and reflective, and to share problems with assurance of confidentiality for professional development (Fisher, 2000).

All invited informants (n = 12) participated in the e-mail survey, for a 100% response rate. All informants were female. The overall mean age of the e-group informants was 45 years, with 16.7% between 36 and 40 years, 25.0% between 41 and 45, and more than half (58.3%) 46 years or older. This composition is similar to Jones' (1999) study on professional development of South Carolina FCS secondary school teachers. According to Jones, the highest number of teachers in her study were in the 40 and 49 age group and majority of teachers' were 40 years and older.

When asked to report on their educational attainment, more than half of the e-group informants (58.3%) reported their highest degree to be at the masters' level, 25.0% held a bachelors' degree, 8.3% reported holding a specialist degree, and another 8.3% have a doctorate degree. Furthermore, half of the respondents (50.0%) had more than 15 years of teaching experience, 16.7% had between 11 and 14 years, 25.0% had between two and four years, and 8.3% were in their first year of teaching (Table 4.1). These demographic

Table 4.1 Demographic characteristics of informants [a]

Category	Number	Percent
Gender		
Female	12	100.00
Male	0	0.00
Age in years		
21 - 25	0	0.00
26 - 30	0	0.00
31 - 35	0	0.00
36 - 40	2	16.70
41 - 45	3	25.00
46 and above	7	58.30
Highest Degree Attained		
Bachelor	3	25.00
Master	7	58.30
Specialist	1	8.35
Doctorate	1	8.35
Years of teaching		
0 -1	1	8.35
2 -4	3	25.00
5 - 7	0	0.00
8 - 10	0	0.00
11- 14	2	16.70
15 and more	6	50.00

[a] $n = 12$

attributes of the informants indicated that teachers on these boards were veterans and could serve as mentors for FCS beginning teachers. In Sosa and Gonzales' (1993) study of the Teachers Need Teachers program, the mentors were selected for their years of teaching experience and supportive characteristics.

The survey findings were surprising. According to Kagima (1998), telecommunication is less likely to be used by educators over 50 years of age and with more than 10 years of teaching experience. Yet, the e-group informants, those taking leadership in using the electronic bulletin board, were older, experienced teachers.

Frequency of Communication

For each bulletin board, the number and the time of day of message postings, number of peer responses, and the length (in days) for the response were determined. A total of 691 messages were posted to the three bulletin boards during the 12-month period of the study and the average length for a response to a message was one to two days. Figure 1 illustrates the number of messages posted during each month of the study by the electronic bulletin boards. It is evident from Figure 1 that more messages were posted by each electronic bulletin board at the beginning of each semester (August and January) and after these months the number of message postings fell. Fewer message postings occurred during the winter break (December) and nearing the end of the school year (April and May). Activity in the summer (June and July) was relatively light for NCFACS and FCSWF while that of FCST was inactive. This is not unusual for any discussion group, and certainly it is not surprising for a group of teachers who want to share their resources, experiences, frustrations, and problems at the beginning of the semester when they were less busy.

Evidence of this can be seen in the up and down patterns of the message postings. Survey results were not different from this. Only 20% of the respondents reported posting messages once a week and 33% accessing the bulletin board once a week. These findings are not different from those reported by Lehman, Warfield, Palm, and Wood (2001), who examined the use of an online discussion forum to assist mathematics teachers to develop their teaching practices consistent with current reform recommendations for teaching mathematics. The forum involved mathematics teachers in the online community for one school year. In that study, fewer postings also materialized during traditional break times; winter, spring, and end of school year (December, March, and May respectively).

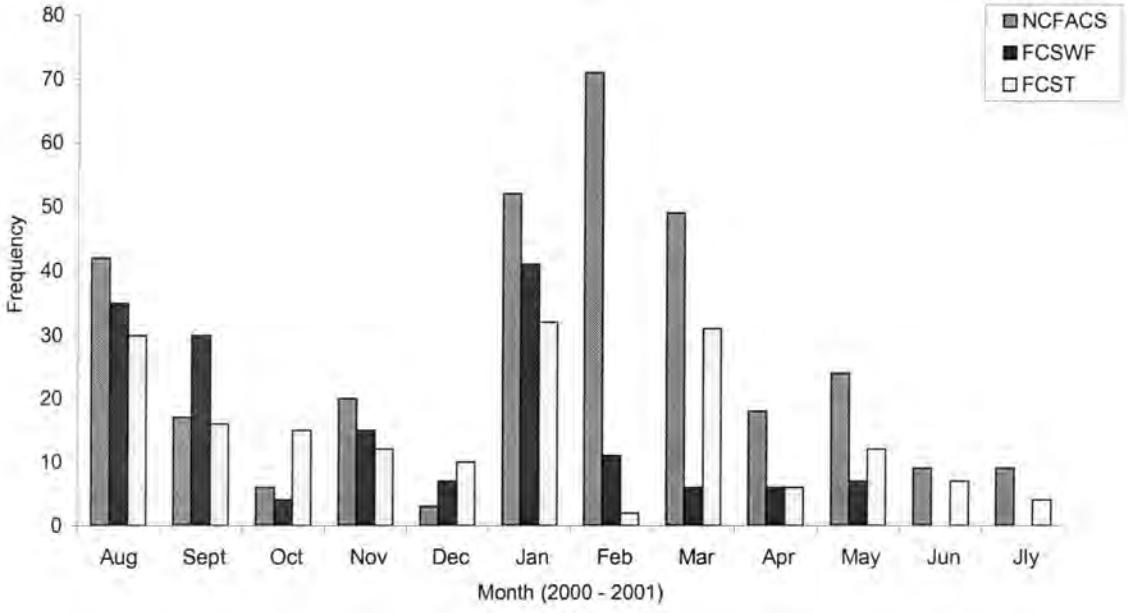


Figure 1. Number of messages posted per month

In addition, Figure 2 shows the total number of messages posted by each electronic bulletin board and Figure 3 illustrates the time of day that messages were posted. Among the electronic bulletin boards, NCFACS posted a total of 328 messages, FCSWF 177, and FCST 186 (see also Table 4.2). The high number of messages posted by NCFACS may be attributed to its large membership (164), as compared to 51 members for FCSWF and 95 members for FCST. Furthermore, a larger number of message postings on each electronic bulletin board occurred during After School Hours (ASH), that is 5:01 pm - 6:59 am, Monday to Friday. A possible explanation for these findings can be attributed to the heavy workload that many teachers encounter during school hours with no time for professional development activities. As one informant stated, *I have less time at school to read messages*

on the bulletin board. This finding is consistent with other research reports suggesting that prevailing culture and structure of schools, and the typical school schedule prevented teachers from professional dialogue with colleagues (Court, 1999; Fisher, 2000; Watts & Castle, 1992).

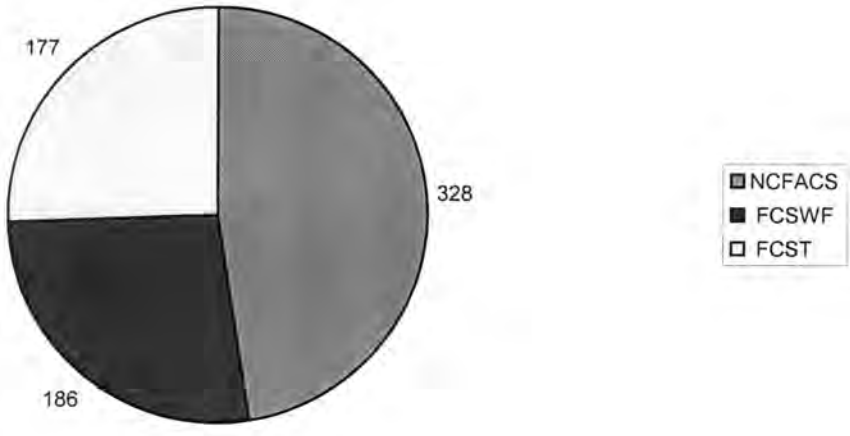


Figure 2. Total number of messages posted by each group.

The survey results reveal that 66% of the selected informants have access to a networked computer at school and 83% have it at home. This means that they could read the messages at school or home. This is similar to Schrum's (1995) findings that an educator is likely to use telecommunication when time is built into the school day or they have access to telecommunication equipment at home.

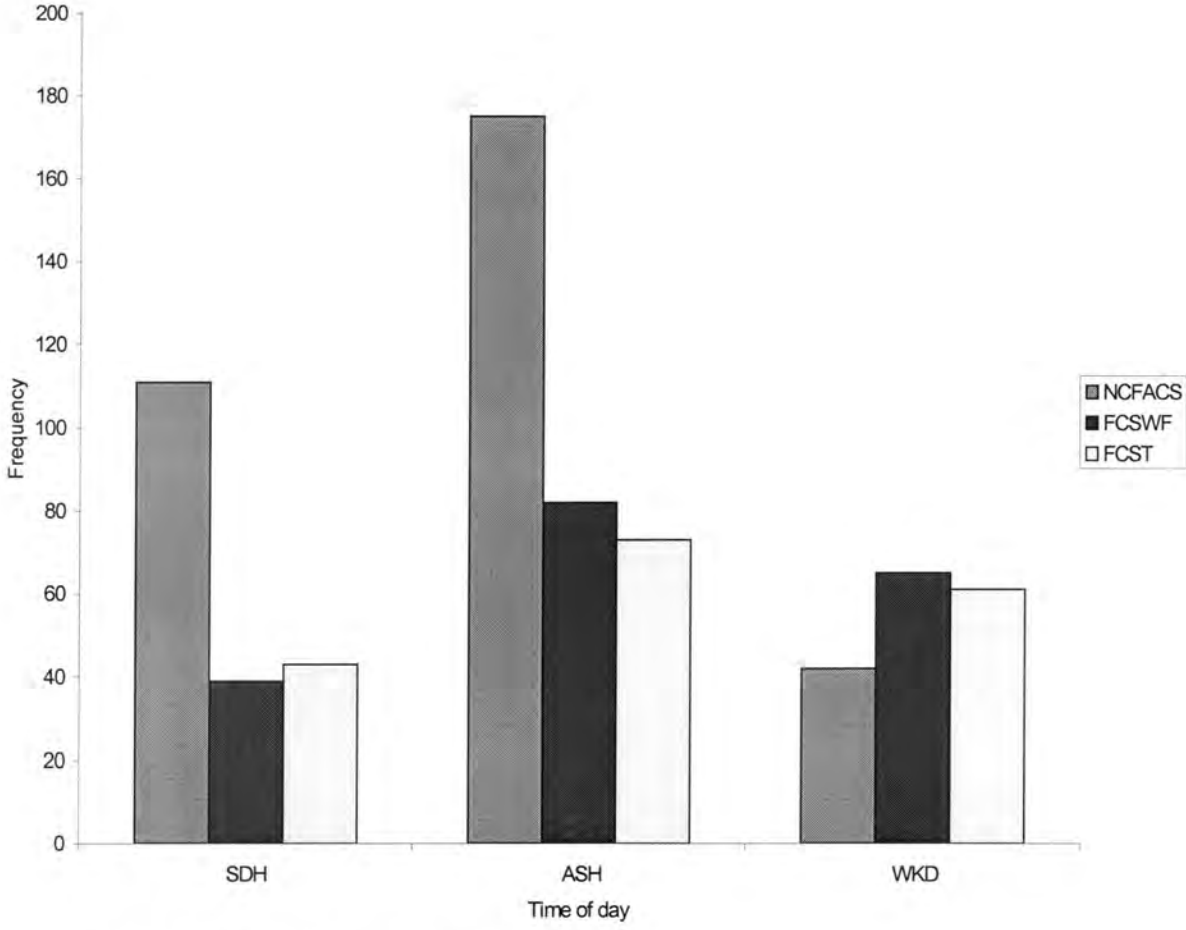


Figure 3. Message posting times [a]

[a] SDH = School Day Hours (7 am - 5 pm, Monday to Friday)

ASH = After School Hours (5:01 pm - 6:59 am, Monday to Thursday)

WKD = Weekend (5:01 pm - 6:59 am Friday to Monday)

Table 4.2 Frequency of posting times on the electronic bulletin boards [a]

Posting times	Electronic bulletin boards					
	NCFACS		FCSWF		FCST	
	n	%	n	%	n	%
School Day Hours (7 am – 5pm) Monday - Friday	111	33.8	39	20.9	43	24.3
After School Hours (5:01 pm – 6:59 am) Monday - Thursday	175	53.4	82	44.1	73	41.2
Weekends (5:01 pm – 6:59 am) Friday - Monday	42	12.8	65	35.0	61	34.5
Total	328	100.0	186	100.0	177	100.0

[a] NCFACS = North Carolina family and consumer sciences teachers

FCSWF = FCS work and family

FCST = FCS teachers

Content Analysis of Messages

To investigate the contents of the communication on the electronic bulletin boards, the researcher developed coding categories, identified the types of discussion or dialogue that took place among members, and then counted the number of instances that it occurred for each category. An example of the types of members' discourse within each category is provided in Appendix C.

Figure 4 illustrates the overall message contents posted by participants on the electronic bulletin boards. Some messages were coded in more than one category (examples in Appendix C). There was much variability with respect to the number of message contents in each category. In general, message contents pertaining to resources (RCS) and social (SCL) tended to be most common for all the electronic bulletin boards, while contents pertaining to inspiration (IPL) were less common. The reflective discourse category was much the same for all the boards although it did not account for a large proportion of the total message content category.

The electronic bulletin boards provided a place for participants to discuss social and personal issues, health status of a member, and general or e-group information. As one member posted:

> *Some of you may have heard, but we want all of you to know. If you have a colleague who is not a member of the e-group, please relay the message. (Name withheld) will be out of her office for some time. She was vacationing in Ireland last week, fox hunting with her husband and friends, and was thrown from a horse while they were horseback riding. She has suffered a brain injury. The extent is not yet known. Please keep her in your thoughts and prayer*

This was not surprising because members got to know one another through the bulletin boards for more than a year and should be able to discuss a member's issues. In addition, the electronic bulletin boards provided an area for FCS professionals to talk to one another or socialize. Informants surveyed corroborated this. When they were asked whether electronic bulletin boards facilitated communication with other FCS educators, 100% agreed

that the board enhanced their communication. The majority of the informants (83%) agreed that they felt less isolated because they could talk to peers through the board while 16% disagreed.

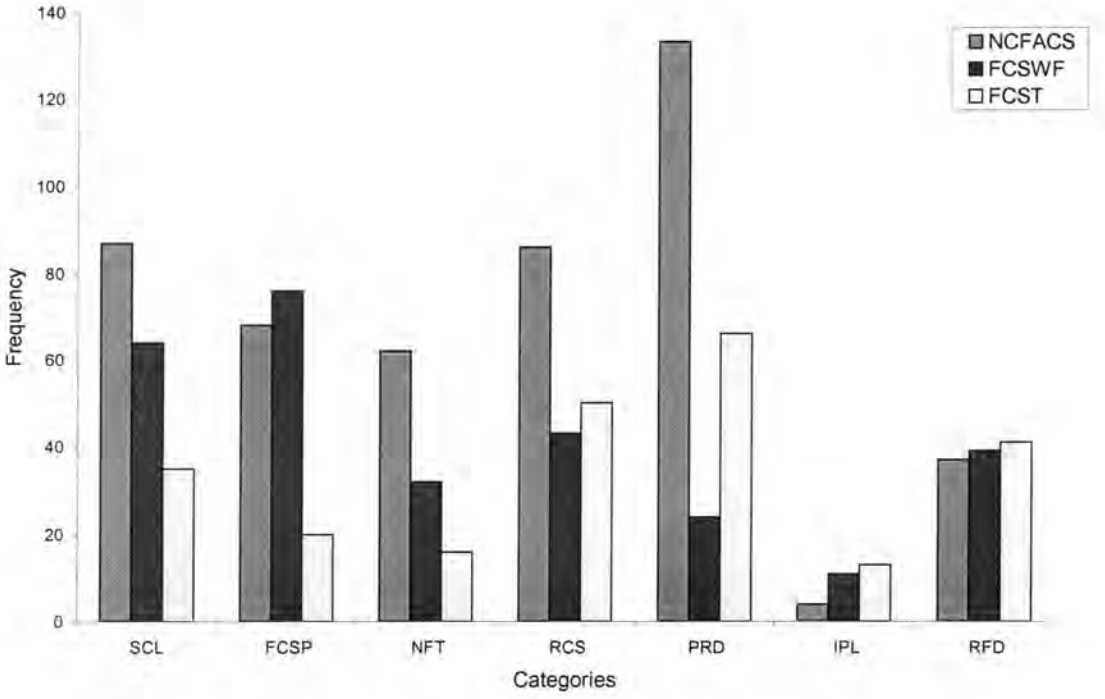


Figure 4. Breakdown of message content by category [a]

[a] SCL = social
FCSP = family & consumer sciences pedagogy
NFT = nature of teaching
RCS = resources
PRD = professional development
IPL = inspirational
RFD = reflective discourse

One reason I began this list was my frustration in finding <u>any kind</u> of FCS teacher support and communication on the web. It's been my experience that there are outstanding FCS teachers who are doing tremendous things in the classroom, but

> *who knows about it? It's been much more difficult than I imagined in simply helping other FCS teachers find our list. Organizations that have newsletters and web sites (we all know and are members of) have been uninterested or unable (not sure which) to help inform members of its existence. Given the turbulent times FCS is dealing with, I think we need to be in touch with each other now more than ever. To everyone who hasn't started school yet: Have a great first week*

Furthermore, message contents relating to FCS pedagogy were posted to comment on issues relating to FCS programs and questions on teaching FCS content (including lessons, program standards, and curriculum planning. As one member posted:

> *I am involved with a group of teachers in Georgia devoted to saving our programs and we are trying to find out what others are doing in other states. We are looking for ideas in high school curriculum and textbooks used in Family and Consumer Sciences classrooms. What are the names of the classes you teach? Are any of your classes required for graduation? Which textbooks do you use? Has your budget been cut in the past two years? Has your enrollment increased or decreased in the past two years? What do you do to promote your program?*

An informant when asked what support she received through electronic bulletin boards stated:

> *A recent change in the middle school curriculum caused me to send out a help request. I got several responses that helped shaped the curriculum.*

This sharing of information regarding FCS programs or curriculum resulted in seeking common meaning or response to a given situation. The electronic bulletin boards also provided a forum for members to make requests for teaching ideas and assessment tools.

> *Hello, I was wondering if anyone would be willing to share how they have "used" the Baby Think It Over program. Specifically, how did you use the program as an assessment tool? How many points was it worth? Did you count each item in the student packet? Did you have other assignments in conjunction with taking the baby for a 24 hours period? I am about to use it for the first time and feel a bit overwhelmed. I have only 6 Babies (2000 Version) and a total of 55 students between two classes. I welcome any and all suggestions. Thanks*

In sharing concerns, the members were able to engage in scaffolding teaching ideas with each other.

> *I have 4 BTIO to use among 15 students in conjunction with the Taking Charge curriculum. It is a class of only girls and they carry them for an entire weekend. Sometimes a three-day weekend if it happens to fall that way.*
>
> *1. I pass out the permission slips and require them to bring in 4 AA batteries. This is no big deal since they buy them for their Walkman's all the time. Since there is not enough "juice" in the batteries for another weekend of baby use, I give them back their batteries to use in their Walkman's.*
>
> *2. The students know that I will draw the names of the people who have brought in their permission slips on Thursday to be "mommies" on Friday. Yes, they have only one day's notice. I do not think it is realistic to let any student choose when it is convenient for them to carry BTIO. That is the whole point of BTIO... the agony, the*

inconvenience, the lack of sleep, etc. Since most teen pregnancies are unplanned, my students don't get to "plan" when they carry the baby. I just love it when they groan or complain about something they have planned.

3. I also stipulate that if there happened to be a school dance on a Friday and they bought a ticket and then they find out that they are mommies, they cannot go to the dance. This decision is due to seeing a student's behavior with BTIO at a dance. She passed it off to many people and when I confronted her about it so it was very frustrating seeing her dance (very inappropriately I might add) with BTIO.

4. No slumber parties either. When a whole bunch of girls are together it creates an atmosphere of playing with a doll rather than assignment with a baby.

5. I tell the students what the babies are registering in the computer. We have a class discussion what "neck support" signifies and that leads into what can happen and "shaken baby syndrome" etc. Then I have the students give a negative point value to the numbers on the electronic box. They have given very severe point values like -20 for abuse, -15 for neglect.

6. Under this point value as devised by the students, no one will pass. They will fail horribly. Like -140 out a possible 100 points. You can do one of two things. Let it go and discuss what such a bad score translates to in reality. OR they can earn their grade back with assignments. Reports on shaken baby syndrome, child abuse to name some. Figure out baby costs (as provided in the packet). Make them interview a teen parent and their own parents and compare and contrast.

7. Start slow and do what you can handle. You will find that your program will always keep changing. You will start to see the quirks and foibles of your students and tweak your program so it works for you.

The FCS teachers were able to integrate bits and pieces of different teaching ideas together and perhaps improve their own teaching by what had been said by others. Informants corroborated this when requested to indicate their agreement or disagreement with statements that described the efficacy of electronic bulletin boards in their teaching. The majority of the respondents (over 80%) agreed with all the statements in this section (Table 4.3) indicating how electronic bulletin boards have validated their teaching. Further, the use of electronic bulletin boards could help educators stay current with best practices in their field and try out new innovative teaching resources.

Has anyone taped the series of sew young and sew fun and used it in the classroom? It sounds really nice with teens sharing what they've made. I read that each show tells about a service project idea that is conducted by kids. It is on PBS I think. I'm not sure when it is scheduled.

I did a quick search on dog pile and found this site: http://www.sewyoungsewfun.com. It looks like a great resource--there is also a list of stations and times it is aired, unfortunately, not in my area (Philadelphia). There were several other links to sewing shows (I searched for "Sew Young TV") that I didn't check out. I never heard of the series so I appreciate the information.

As with any profession, teachers need opportunities to expand their knowledge and refine their skills. Electronic communities serve as a vehicle for providing information on educational issues and trends.

I know this sound too good to be true but from what I have read it sounds wonderful! I had registered last month and then got this update. The Teacher Laptop Foundation - July News. As summer kicks into high gear, we wanted to take a moment to bring everyone up to speed on the tremendous progress being made by the many individuals coming together to create a national coalition to provide every K-12 teacher in America with a laptop computer and Internet service at home via The TeacherLaptop Foundation. As indicated below, our goal is to begin official registration for teachers by the end of the July or the first part of August. To this end, we are asking you to please notify as many of your teaching associates as possible and ask them to provide their e-mail address via Teacher Registration button on the Foundation's web site at http://www.teacherlaptop.org .

Survey findings also indicate that resources are shared on the electronic bulletin boards. As an informant stated: *When I was looking for resources, colleagues were able to make suggestions.*

Teachers with access to a telecommunication network can contact other educators to discuss issues relating to their professional development (Bodzin, 2000). This study reveals that FCS professionals engaged in electronic communities discussed issues pertaining to national board certification, conferences, jobs, and courses available in FCS that promote professionals' development.

Hello everyone! If you have taken the PRAXIS Home Economics Education specialist exam (they still call it that!), this letter is for you! I will take this exam next month and need any advice I can get. If you have taken this exam, please share your expertise. How difficult did you think the test was? Did you have to take this exam

Table 4.3. Efficacy of electronic bulletin boards

Informant		Disagree		Agree	
	n	f	%	f	%
The use of bulletin boards facilitated my communication with other family and consumer sciences educators.	12	0	0.00	12	100.00
My teaching experience is enriched day by day as I communicate with other family and consumer sciences educators in the field.	11	0	0.00	11	100.00
Like to support other FCS educators through the use of this bulletin board.	10	0	0.00	10	100.00
The FCS bulletin boards helped me exchange teaching ideas, information and advice.	12	1	8.30	11	91.70
Participating in this bulletin board fosters a collaborative sense of learning community.	11	1	9.10	10	90.90
Feel less isolated from other professionals in the field because I can talk to others on the bulletin board.	12	2	16.70	10	83.30
My teaching is validated through my interactions on the bulletin board.	11	2	18.80	9	81.20
Interacting with FCS teachers on the bulletin board has promoted my reflection on teaching.	10	3	30.00	7	70.00
The suggestions and help offered by other educators through the bulletin board relieved my anxiety about teaching.	12	6	50.00	6	50.00
Feel that this medium of communication makes my school work faster.	11	7	63.70	4	36.30
Use the bulletin board to communicate with peers about discipline of students.	10	8	80.00	2	20.00

more than once or did you pass with flying colors? I am just a little nervous, and would like to know what to expect. Thanks for any help you can offer

In addition, 50% of the informants, when asked to provide the benefits received through electronic bulletin boards, stated that they were notified of professional meetings, training opportunities, workshops, and job opportunities available in FCS. Furthermore, some of the messages posted were humorous. As one member posted:

Anger hurts...there once was a little boy who had a bad temper. His father gave him a bag of nails and told him that every time he lost his temper, he must hammer a nail into the fence. The first day the boy had driven 37 nails into the fence. Over the next few weeks, as he learned to control his anger, the number of nails hammered daily gradually dwindled down. He discovered it was easier to hold his temper than to drive those nails into the fence. Finally the day came when the boy didn't lose his temper at all. He told his father about it and the father suggested that the boy now pull out one nail for each day that he was able to hold his temper. The days passed and the young boy was finally able to tell his father that all the nails were gone. The father took his son by the hand and led him to the fence. He said you have done well, my son, but look at the holes in the fence. The fence will never be the same. When you say things in anger, they leave a scar just like this one. You can put a knife in a man and draw it out. It won't matter how many times you say I'm sorry, the wound is still there. A verbal wound is as bad as a physical one.

A key factor enabling sharing of such humor could be that members share a collective understanding, experience, and a sense of belonging to a group working together to combat mutual isolation. Historically, the social and emotional benefits of peer interaction have been

available only in face-to-face interaction or communication. The findings of this study tell a different story. Each electronic bulletin board posted messages telling jokes and giving words of knowledge and encouragement. This indicates that the computer-mediated communication enabled members to feel comfortable, as they might not otherwise have felt in face-to-face settings.

In general, the electronic bulletin board served as a vehicle for FCS teachers to engage in reflective discourse. Reflective discourse involves asking focused questions, sharing concerns, and seeking common meanings in teaching practice.

> *Has this ever happened to you? I just found out I do not have any more money in my FCS school account and it is only February. I'm teaching in a middle school and I need to do some very fast fundraising. I want to do something easy, not like selling from a company or book. Does anyone have any ideas that they could share? I can't take any risks. This was a bit of a surprise for me. Thanks to anyone that has advice.*

The board provided a medium for members to share their perspectives and experiences on issues and perhaps provided the more timid teachers to participate in the discussion more than they might in a face-to-face conversation. One member offered her insight in response to the above request.

> *How did you run out of money? Did your principal just take it away? Were you not told your budget at the start of the year? I find you really have to keep an eye on your running tally each month so this type of thing won't happen. Don't start fundraising yet; go to your principal and really dig as to how did this happen. How much are you allocated? Is it one lump sum or "x" amount per student? You may want to throw yourself at the mercy of them to scrounge up some funds. I find our principal always*

has money tucked away for emergencies. You may have to promise careful bookkeeping next year. There is always your PTA to ask for some funds. Put an article in your school paper for parents asking for donations. Do a little begging in school before you start having yard sales. You don't know until you ask.

In addition, the electronic bulletin boards enabled members to think about their teaching approaches and decision making in the classroom. In the survey, an informant when asked about how electronic bulletin boards are different from face-to-face communication stated:

You have time to think about what is being said and provide a well thought out response to help someone who needs it. You can do it when it is convenient for you.

Bulletin Board Topics that Promoted Greatest Exchange of Ideas

Table 4.4 illustrates the discussion topics or subjects, and the number of responses in descending order. There was much variability in the use of topics by the electronic bulletin boards and some topics prodded more responses than others. Generally, topics pertaining to FCS pedagogy and professional development promoted the greatest exchange of ideas, whereas topics pertaining to general issues did not promote responses (replies) among members. The electronic bulletin board topics that promoted the greatest exchange of ideas were arrangements for conferences, National Board Certification Exams, Praxis, continuing education, standards, job announcements, development of test banks, and Teen Times Magazine (Table 4.4). In addition, when informants were asked to recall the topics that promoted most exchange of ideas, the majority of them (60%) indicated that teaching strategies, current events in FCS, standards, and job openings promoted the greatest exchange of ideas.

Table 4.4 Electronic bulletin boards topics [a] that promoted greatest exchange of ideas

Topic	Number of responses			
	Total	NCFACS	FCSWF	FCST
Summer conferences	35	28	4	3
Teen Times Magazine	28	9	19	0
Self introduction	20	5	9	6
Back to school	15	0	15	0
Secured test items bank	14	14	0	0
Baby Think It Over (BTIO)	13	9	4	0
National Board Examination	13	6	3	4
Project meetings	13	7	6	0
Child development and parenting	12	8	4	0
FCS text book	12	0	2	10
Members' health status (name withheld)	12	12	0	0
Standards	11	0	0	11
Graduate online courses	8	0	0	8
Professional association	8	8	0	0
Course substitute for FCS classes	8	0	8	0
FCS program (Oprah & Ohio State)	8	3	3	2
Agreement with community colleges	7	0	0	7
Moving to another state	6	6	0	0
First year teacher	5	1	4	0
Career choices	4	0	4	0
Problem solving	4	0	4	0
Resource management	4	0	4	0

[a] Message threads with four or more responses

The topics that promoted the greatest exchange of ideas on all the boards were conferences, Teen Times Magazine, self-introduction, and National Board Certification Exams, indicating that FCS electronic bulletin board members experienced similar situations in their teaching and they used the board to discuss and share these experiences. However, there was some variability in topics and the number of responses to a message thread across the electronic bulletin boards. On average, many topics had six to eight replies (responses) while others had only one or no response at all. In general, topics such as virus warnings, rubric sites, and jokes were posted basically to share information. In such message threads there were no prompts in the interaction to educe a response. Furthermore, it was interesting to note that topics relating to sewing ideas solicited no response.

Peer response does affect the depth of the electronic bulletin board dialogue. By using the boards FCS teachers can take advantage of the opportunity to ask questions and apply reflective thinking to an issue being presented. However, response is not guaranteed because members can choose which postings to read and respond to. Most informants ($n = 8$) stated that they read messages on the boards by scanning the content for issue of interest while skimming others.

CHAPTER 5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter begins with summary of the information presented in the previous chapters. This is followed by the conclusion of this study. Next, recommendations are provided for developing and implementing computer-mediated communication networks based on the findings and experiences of the researcher. The chapter ends with suggestions for further research on computer-mediated communications among FCS teachers.

Summary

The professional isolation of teachers has been a major concern in the field of education, particularly for some subject areas such as family and consumer sciences. With the contact of faculty and training institutions out of action, many teachers encounter the challenges of teaching alone in a school building and sometimes in a school district. A recent solution involves the establishment of computer-mediated communication networks that link classroom teachers together (both novices and veterans). Computer-mediated communication networks enable teachers to collaborate and share teaching ideas and experiences over geographical distance. Because the notion of linking teachers together is relatively new, data on usage and value of these networks especially in the field of family and consumer sciences were not reported in the literature.

The overall purpose of this study was to investigate current uses of electronic bulletin boards among family and consumer sciences teachers. To understand better the computer-mediated communications of FCS teachers on electronic bulletin boards, four research questions were formulated to explore the types of discussions that took place among members on electronic bulletin boards:

1. What are the characteristics of family and consumer sciences teachers who use computer-mediated communication networks?
2. What are the frequencies of message threads on the electronic bulletin boards?
3. What is the content of the messages of interaction?
4. What topics promoted the greatest exchange of ideas?

Three family and consumer sciences (FCS) electronic bulletin boards were selected from the records of FCS e-groups on Yahoo (http//:www.groups.yahoo.com). These three e-groups, namely North Carolina family and consumer sciences (NCFACS), FCS work and family (FCSWF), and FCS-teachers (FCST), were selected using the following criteria:

- FCS teachers Yahoo discussion group (e-group),
- that has 20 or more members,
- registered on the World Wide Web, and
- posted messages for at least three consecutive months.

In addition, an e-mail survey was administered to 12 informants selected using non-random purposive sampling.

The analysis procedures were drawn from a pluralist and interpretive research paradigm (Burns & Bush, 2000). Messages posted to the electronic bulletin boards were automatically archived by the list host (Yahoo) and could be retrieved monthly. The messages were downloaded and saved on a removable zip disc, printed, read, and reread. In the 12-month period of the study, the three electronic bulletin boards posted a total of 691 messages. The downloaded messages format was converted into a text and entered into QSR NUD*IST 4 software for analysis. Individual messages posted constitute the unit of analysis. Through constant comparative method (Creswell, 2002;Glaser, 1978), coding categories

were developed by the researcher, reviewed by a faculty member in family and consumer sciences, and then applied to the electronic bulletin board transcripts (messages) to identify the contents of the interactions. A second-rater (coded one-fifth of the messages) reliability coefficient based on Holsti (1969) formula was .94 indicating a high index of accuracy. The study also explored the frequency and time that messages were posted and the topics that promoted the most exchange of ideas on these electronic bulletin boards.

This study found a marked difference between the months and the time of day that message postings occurred. Some of the findings were surprising. The teachers' level of participation in the computer-mediated communication (electronic bulletin board) fell significantly after the first month of each semester (August and January). This study also found that members posted more messages After School Hours (ASH) than the other hours (School Day Hour and Weekend). Factors that may have accounted for this dialogue pattern include the heavy workload of teaching assignments, traditionally rigid and structured school schedules, and infrequent participation by some members.

Some research indicates that a number of factors affect participation in electronic communities. According to Anderson & Harris (1997), Harasim (1990), Rogan (1995), and Weir (1992), learning styles, priorities, expectations, the level of motivation or obligation to use the system regularly, computer networking experiences, and external factors such as constraints in terms of time and support from one's school system influenced the involvement of participants in telecommunication networks.

The findings revealed that many of the messages posted on the electronic bulletin boards were to exchange ideas, request, receive, and provide support for problems and tensions teachers experienced in their teaching. Many of the message postings were written

in supportive fashion providing words of encouragement to members in difficult situations. This finding was consistent with other research suggesting that computer-mediated communication networks can provide support to teachers (Casey, 1997; Merseth, 1992; Schlagal et al., 1996).

Through content analysis of the message threads, it appeared most of the messages contained meaningful discussions (resources, nature of teaching, FCS pedagogy, and professional development) relating to teaching and promoting FCS content and professional development. These findings differ from what was reported by Lehman, Warfield, Palm, and Wood (2000), who studied elementary mathematics teachers' online discussion forum. In that study, most of their messages contained informational content rather than any meaningful discussion of mathematical thinking.

Furthermore, some of the messages contained social content. The electronic bulletin board provided a common place where members felt comfortable sharing their own experiences with people they have never encountered in face-to-face interactions. The computer-mediated communication fostered a sense of belonging to a learning community where members did not feel threatened by engaging in the dialogue. Perhaps the absence of physical and social cues, and anonymity in computer-mediated communications enabled members to feel that comfortable communicating.

In addition, message threads contained reflective discourse content. A reflective discourse on the electronic bulletin board included asking focused questions or seeking common meanings in teaching practice for a given situation. A main advantage that asynchronous communications has over face-to-face communication is that you can say whatever you need to say or change it before you actually send or publish it. One informant

stated that her responses were "well thought out" and she could provide it at her own convenience. This is substantiated by Berge (1997) and Harasim (1990) who found that the asynchronous medium allowed their participants more time to think and reflect before responding to postings.

There are other factors that influenced participation in electronic discourse. The asynchronous nature of computer-mediated communications allowed members to communicate in a reflective online community at their own convenience. Many informants ($n = 9$) stated that electronic bulletin boards allowed them to select a time that was convenient to their schedule to read and respond to message postings. However, one informant perceived the electronic bulletin board as being more impersonal than face-to-face interactions. She mentioned that face-to-face allows for physical cues including hand gestures, voice intonations, and facial expressions that aid in understanding the context of a spoken discourse.

The absence of such cues in online communication changes the conventional rules of communication. This however, can be beneficial because electronic dialogue focuses on the content of the message and not the characteristics of the speaker. In addition, it allowed the more timid or reflective teachers in the group a chance to participate in the discourse more than they might in face-to-face conversation. Also, it contains no visual cues that might intimidate some members. This was the phenomenon observed in the computer-mediated communications.

The findings further revealed that certain topics promoted discourse on all the electronic bulletin boards. This was surprising because each electronic bulletin board is independent. These topics (conferences, Baby Think It Over, National Board Certification,

and job announcements) were authentic concerns that members could relate to. This observed phenomenon indicated that FCS teachers experienced similar situations and because they are isolated from peers, they used computer-mediated communications (electronic bulletin boards) to discuss and share these experiences and information. As one informant stated, "opportunities for face-to-face communication with other FCS teachers is not available when it is needed most." Because computer-mediated communications permit immediate feedback, they contribute effectively to the shaping of reflective thinking. This finding was substantiated by Zimmerman and Greene (1998), who found that the use of a listserv provided opportunities for teachers to engage in reflective dialogue, providing ongoing opportunities for pedagogical concepts to be discussed.

The survey revealed that a majority ($n = 7$) of informants were 40 years and older and had at least 15 years of teaching experience. This indicates that the family and consumer sciences computer-mediated communication networks had many veteran teachers as members who could serve as mentors and share their teaching experiences with peers and beginning FCS teachers.

Conclusions

It can be concluded that FCS computer-mediated communications provide an effective means for developing collaboration among colleagues, peers, and mentors. Members used electronic bulletin boards to express concerns, request for help, and exchange ideas with expert teachers. By using electronic bulletin boards, members have the opportunity to apply reflective thinking on topics presented or posted and engaged in dialogue about classroom practice, educational reform issues, and some specific FCS courses

or subjects. In addition, computer-mediated communications created an avenue for teachers to use their limited time with peers to discuss teaching problems and solutions, and develop better teaching skills.

Furthermore, computer-mediated communications provided safe, convenient opportunities for reflection and conversation, moral support and assistance in breaking down the barriers that FCS teachers experience in their isolated settings. The computer-mediated communications promoted dialogue through focused questions and comments and enabled members to have unlimited information, receive peer-peer support, and validation about their teaching practice from other members. Also, members who have low participation on electronic bulletin boards professionally benefit from reading the postings of other members. It also helped them to identify opportunities for professional development.

Although the FCS teachers were using computer-mediated communications for sharing teaching ideas, they were less inclined to critique themselves publicly. Without fresh ideas, it could be difficult for even the experienced teacher to develop professionally.

Recommendations for Practice

It is very challenging to successfully develop and implement computer-mediated communication network. Based on the researcher's experiences and the studies of others found in the literature, several recommendations are offered.

- Members still need some kind of motivation or encouragement to be able to participate in and facilitate the online discourse. This may involve facilitation by moderators (calling for new post) to sustain the dialogue and promote members' participation.

- The involvement of the Department of Education and faculties of teacher training institutions in providing educational reform issues may play a significant role in facilitating conversation in electronic communities. The researcher observed that North Carolina Department of Education personnel encouraged and facilitated most postings of messages on the North Carolina Family and Consumer Sciences electronic bulletin board.
- It should also be noted that introductions pertaining to grade level and courses that members are teaching as well as information on their professional interests could also help members become better acquainted with each other.
- Once the network or the e-group is started, it is essential that the moderators access the electronic board regularly, or set up a system to automatically grant membership to new applicants. If these conditions are not in place, people wanting to become members will be discouraged and frustrated as a result of pending membership.
- It may be helpful for members, especially new members, if the moderator of the group provides directions for registering and basic information on how to navigate the system once the member logs on.

Recommendations for Future Research

Because the idea of linking FCS teachers together through computer-mediated communication is relatively new, there are many areas where further research could be conducted.

- Results from this study reveal that members of the electronic bulletin boards were active (posted more messages) at the first month of each semester than others.

Therefore, further research should be conducted to determine why FCS teachers' involvement decrease after it peaks up. It would be interesting to determine what causes the usage of the electronic bulletin boards to change over time. This involves the number of messages and replies posted to vary during particular times of the year. This would illustrate whether teachers' workload or activities interfere with their involvement in the group and what the schools and State Department of Education could do to address the problem.

- A correlation study of FCS teachers who have not had any electronic communication with colleagues should be conducted. Studying why FCS teachers have never participated in computer-mediated communications can bring insight and understanding to provide effective methods of communication that would help FCS teachers stay in touch with one another.
- Another important area involves studying the advantages and the disadvantages for using electronic bulletin boards as viewed by members themselves. This would help encourage FCS teachers who are non-users or members of e-groups to become members.

APPENDIX A

HUMAN SUBJECTS INSTITUTIONAL REVIEW BOARD APPROVAL

Iowa State University Human Subjects Review Form

OFFICE USE ONLY
EXPEDITED X FULL COMMITTEE ____ ID# 22-085

Dodor
PI Last Name ____ **Title of Project** Computer Mediated Communication Among...

Checklist for Attachments

The following are attached (please check):

13. ☐ Letter or written statement to subjects indicating clearly:
    a) the purpose of the research
    b) the use of any identifier codes (names, #'s), how they will be used, and when they will be removed (see item 18)
    c) an estimate of time needed for participation in the research
    d) if applicable, the location of the research activity
    e) how you will ensure confidentiality
    f) in a longitudinal study, when and how you will contact subjects later
    g) that participation is voluntary; nonparticipation will not affect evaluations of the subject
14. ☐ A copy of the consent form (if applicable)
15. ☐ Letter of approval for research from cooperating organizations or institutions (if applicable)
16. ☒ Data-gathering instruments

17. Anticipated dates for contact with subjects:

First contact	**Last contact**
Sept./20/01	Dec/20/01
Month/Day/Year	Month/Day/Year

18. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

    Dec/20/02
    Month/Day/Year

19. Signature of Departmental Executive Officer _____ Date 9/17/01 Department or Administrative Unit Apparel, Educational Studies, and Hospitality Management

20. Initial action by the Institutional Review Board (IRB):

    ☒ Project approved ☐ Pending Further Review _____ Date ☐ Project not approved _____ Date

    ☐ No action required _____ Date

21. Follow-up action by the IRB:

    Project approved ☐ _____ Date Project not approved _____ Date Project not resubmitted _____ Date

Rick Sharp _____ _____ 9/27/01
Name of IRB Chairperson Signature of IRB Chairperson Date

APPENDIX B

HUMAN SUBJECTS TRAINING CERTIFICATE

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Research and Advanced Studies
Office of the Vice Provost
211 Beardshear Hall
Ames, Iowa 50011-2036
515 294-6344
Fax 294-6100

September 26, 2000

This is to certify that **BERNICE A. DODOR** attended an Iowa State University workshop on September 19, 2000 regarding the protection of human subjects in research.

The workshop covered the following topics:

- the historical perspectives of human subjects research
- The Belmont Report
- the federal regulations (45 CFR 46 and 21 CFR 50&56)
- assurances of compliance
- Institutional Review Board (IRB) composition and duties
- elements of informed consent
- IRB review process
- modification of research activities and unanticipated problems
- issues in behavioral and social science research
- Iowa State University policies and procedures

In addition, attendees were provided a copy of The Belmont Report and the Iowa State University Multiple Project Assurance filed with the Office for Human Research Protections. They were also given information on the resources available on the World Wide Web.

Patricia M. Keith
IRB Chair

Prem S. Paul
Associate Vice Provost for Research &
Institutional Official Responsible for
Human Subjects Research

APPENDIX C

ELECTRONIC BULLETIN BOARDS CODING CATEGORIES EXAMPLES

1. Social (SCL): Messages pertaining to sharing general information, personal introductions, situations about a member, unsubscribe.

Some of you may have heard, but we want all of you to know. If you have a colleague who is not a member of the e-group, please relay the message. (Name withheld) will be out of her office for some time. She was vacationing in Ireland last week, fox hunting with her husband and friends, and was thrown from a horse while they were horseback riding. She has suffered a brain injury. The extent is not yet known. Please keep her in your thoughts and prayer. (Name withheld) has joined the DPI staff as Family and Consumer Sciences Consultant. She is a veteran teacher from Cumberland County. She took the position vacated by (name withheld). She is still new in the position, learning as quickly as she can, but would appreciate any and all help at this time.

2. Family and consumer sciences pedagogy (FCSP): Questions or comments relating specifically to FCS programs, teaching family and consumer sciences contents including lessons, program standards, curriculum planning, and evaluation.

I am involved with a group of teachers in Georgia devoted to saving our programs and we are trying to find out what others are doing in other states. We are looking for ideas in high school curriculum and textbooks used in Family and Consumer Sciences classrooms. What are the names of the classes you teach? Are any of your classes required for graduation? Which textbooks do you use? Has your budget been cut in the past two years? Has your enrollment increased or decreased in the past two years? What do you do to promote your program?

3. Nature of teaching (NFT): Message postings relating to classroom instructions, experiences, methods, or management in general, and student assessments.

Two years ago our State In-Service workshops focused upon developing authentic assessment tools and the resource guide they gave all of us was really nice. If you weren't able to go to convention or the workshop, you may have missed this. I'm sure it is still available for purchase from the State~ about $25-30. It is a large three ring binder type of guide, and worth the price. Also, have you seen the rubrics for the FCCLA Star events? If you haven't had the chance yet to see either the Assessment Guide or Star Rubries, let me know and I'll dig through and pick some out to share. I just tried to access the State FCS web site but it won't come up. Anyone else having trouble with it?

4. Resources (RCS): Messages in which members share resources such as websites, software, or instructional strategies, and textbooks.

For free materials for FCS topics check out these sites: FREE Internet Training for Teachers sponsored by Global Connections On-Line

http://thechalkboard. eomlOueries/Abstract.taf?lhnction=detail&Abstract LD303 12

USA Today Lesson Plans

http://thechalkboard com/Oueries/Abstract.taf?function=detail&Abstract 1D304 ***05***

The Poloroid Educational Program http://thechalkboard.com/Oueries/Ab stract.taf?function=detail&Abstract 1D303 10

I found these at "The Chalkboard" http://thechalkboard.coml

This is the place to get up-to-date information on free education resources (things for class, lesson plans, materials, grants, tours, workshops, etc.) offered by corporations. Education World included this site in its "Best of the Net" list. Hope it helps!

5. Professional development (PRD): Messages relating to certification examination (Praxis), continuing education, job announcements, conferences, and membership association

We need a teacher in Richmond County. It is at the high school in Rockingham NC. The position will come available the end of December. If you know someone who may be interested please forward this information.

6. Inspirational (IPL): Messages telling jokes (humor), giving encouragement, celebration, and words of faith.

All I really need to know about Life, I learned from Noah's Ark:

(1) Don't miss the boat. (2) Don't forget we're all in the same boat. (3) Plan ahead-it wasn't raining when Noah built the ark. (4) Stay fit-when you're 600 years old someone might ask you to do something really big. (5) Don't listen to critics, just get on with what has to be done. (6) For safety's sake travel in pairs. (7) Two heads are better than one. (8) Build your future on high ground. (9) Speed isn't always an advantage, after all, the snails were on the same boat. (10) When you're stressed, float awhile. (1 1) Remember the ark was built by amateurs; the Titanic was built by professionals. (12) Remember that the woodpeckers inside are a larger threat than the storm outside. (13) No matter what the storm, when God is with you, there's a rainbow waiting.

7. Reflective discourse (RFD): Messages asking focused questions or seeking common meanings in teaching practice.

How many of you 'out there' are middle school teachers? I'm interested in how you teach clothing care and if you teach any sewing machine skills? If so what projects do you use? Thanks!

I was wondering if anyone would be willing to share how they have "used" the Baby Think It Over program. Specifically, how did you use the program as an assessment tool? How many points was it worth? Did you count each item in the student packet. Did you have other assignments in conjunction with taking the baby for a 24 hour period. I am about to use it for the first time and feel a bit overwhelmed. I have only 6 Babies (2000 Version) and a total of 55 students between two classes. I welcome any and all suggestions.

APPENDIX D

INFORMANTS' RESPONSES TO OPEN-ENDED QUESTIONS

What learning support did you receive on (through) the bulletin board?

"Suggestions and ideas for curriculum; ability to compare my district's curriculum to that of other districts. Notification of local professional trainings and meetings".

"Wide variety of applications: discover new strategies; awareness of what is happening in other states; answers/support regarding particular problem etc".

"Project ideas, websites, teaching tips".

"I am notified of courses and workshops that are available in FCS. Information is provided on trends and legislation that can affect my teaching".

"When I was looking for resources, colleagues were able to make suggestions".

"I am new to the group. I have read the responses of others but have not asked questions of my own"

"Notices of meetings. Request for information about school districts and curriculum/scheduling".

"Current issues and trends for the profession"

"A recent change in the Middle School caused me to send out a help request. I got several responses that helped shape the curriculum".

"Information on when workshops are being planned".

"Classroom resources".

"As a group moderator I have been fairly pleased with how list members support each other. I am dismayed that so few have discovered the list. My efforts to enlist support from FCS leaders in publicizing its existence has been terribly disappointing. However, the feedback I've received from those lucky enough to have found the list has been overwhelmingly positive".

"I have positive feedback to ideas I contribute AND my inquiries about other ideas".

"Yes, I mostly receive feedback from teacher".

"I was given specific resources and ideas, names and phone numbers to contact".

"NA".

"Got information about conferences, workshop location, dates".

"No"

"Yes"

"Yes"

How is the bulletin board different from face-to-face communication?

"I can select a time that is convenient to my schedule for reading the e-mails, and respond to those that I feel I can contribute to appropriately".

"Opportunities for face to face communication with other FCS teachers isn't always available when it is needed most".

"I can access the information at midnight if I wanted! I get summarized information because communication in this manner is more precise".

"You can reach many more people at a much faster pace".

"I had a convenient way to contact a large group. Face to face would've taken too long"

"Fast and immediate".

"Pos. You can hear from people across the country with differing perspectives".

"Not much"
"Faster, rapid communication ".

"Face to face allows for nonverbal clues to seek out if the information was understood".

"You have time to think about what is being said and to provide a well thought out response to help someone who needs it. You can also do it when it is convenient for you".

What was the most beneficial aspect you received from using this bulletin board?

"Being able to gather a variety of input to a question, or just view current opinions and points of view o various topics (from a much wider geographical area than local meetings may provide"

"In one post I can reach all list members; receive a variety of responses; and access the archives for more ideas at my convenience". "Questions on programs to refer students to; announcement of job openings, questions on how to approach one's school on policies-standards".

"Receive several good responses within 2-3 days".

"Knowing that there are other teachers out there that have the same concerns as myself".

"The name and phone of a contact at Lancanau hospital about a service learning project".
"Mentoring"

"Know that others out there have the same concerns and questions".
"Notification of events and trends"

"What others are doing"

"Mostly knowing what is going on with people in the FCS community, and keeping in touch between workshops"

What topics or subjects do you recall that promoted the most discussion on the bulletin board?

"Curriculum and meeting standards".

"Teaching strategies and current events in FCS"

"Could not recall"

"Service learning projects, need for teachers to fill spots at local school districts, textbook suggestions".

"Test banks".

"Not recall"

"Notification of trends and events"

"Curriculum changes"

What suggestions do you have for improving the bulletin board discussion?

"None"

"The list needs more members. My observation is that the majority of prefer to lurk while only a few take the time to contribute to the discussion. If those members are too busy to chat, the list falls dead for an extended period of time".

"More people use the board"

"The bulletin board should be promoted so more teachers join".

"All messages e-mailed to me so I can read them"

"None so far".

"Messages come directly to me".

"Careful responses by users".

APPENDIX E

SURVEY QUESTIONS

The program in family and consumer sciences education at Iowa State University is conducting research on uses of e-group bulletin boards as a vehicle to encourage communications among family and consumer sciences educators.

We are asking only four members from each selected e-group to participate in this study. You have been selected because of your active involvement with your family and consumer sciences e-group. The responses you provide will be of great help and value to the family and consumer sciences profession.

The survey should take approximately 10 minutes to complete. All information provided will be kept confidential. Your name will be removed as soon as you return your survey. Responses will be reported as group data when published.

Please complete the survey and return it by Friday, October 12, 2001. We appreciate your time and effort for providing this important information. If you have any questions or concerns, please email at haus@iastate.edu or bdodor@iastate.edu **Thank you.**

Cheryl Hausafus

Associate Professor

Bernice Dodor

Graduate Research Assistant

Title: Computer mediated communication among FCS teachers

The survey has 4 parts: A, B, C, and Demographic Information. Please respond to all questions as best as you can.

Part A: Using e-group bulletin boards

Directions:

The following are attitude and perception statements. Using the scale below, please indicate your agreement with each statement by clicking the corresponding circle.

a. Strongly disagree

b. Disagree

c. Agree

d. Strongly agree

1. **I feel less isolated from other professionals in the field because I can talk to others on the bulletin board.**

○ Strongly disagree ○ Disagree ○ Agree ○ Strongly agree

2. **The use of bulletin boards facilitated my communication with other family and consumer sciences educators.**

○ Strongly disagree ○ Disagree ○ Agree ○ Strongly agree

3. **The FCS bulletin boards helped me exchange teaching ideas, information and advice.**

○ Strongly disagree ○ Disagree ○ Agree ○ Strongly agree

4. **My teaching experience is enriched day by day as I communicate with other family and consumer sciences educators in the field.**

○ Strongly disagree ○ Disagree ○ Agree ○ Strongly agree

5. **The suggestions and help offered by other educators through the bulletin board relieved my anxiety about teaching.**

○ Strongly disagree ○ Disagree ○ Agree ○ Strongly agree

6. **I use the bulletin board to communicate with peers about discipline of students**

○ Strongly disagree ○ Disagree ○ Agree ○ Strongly agree

7. **I feel that this medium of communication makes my school works faster**

○ Strongly disagree ○ Disagree ○ Agree ○ Strongly agree

8. **Interacting with FCS teachers on the bulletin board has promoted my reflection on teaching.**

○ Strongly disagree ○ Disagree ○ Agree ○ Strongly agree

9. **Participating in this bulletin board fosters a collaborative sense of learning community.**

○ Strongly disagree ○ Disagree ○ Agree ○ Strongly agree

10. **I like to support other FCS educators through the use of this bulletin board.**

○ Strongly disagree ○ Disagree ○ Agree ○ Strongly agree

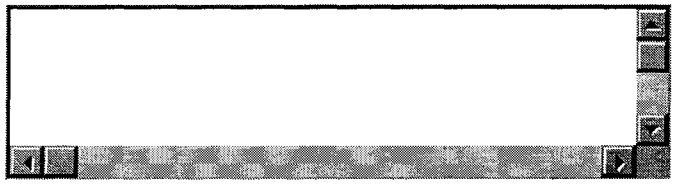
11. **My teaching is validated through my interactions on the bulletin board.**

○ Strongly disagree ○ Disagree ○ Agree ○ Strongly agree

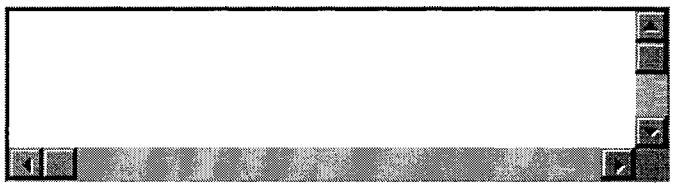
Part B: Bulletin Board Usefulness

Direction: Please type your response to each question in the space provided.

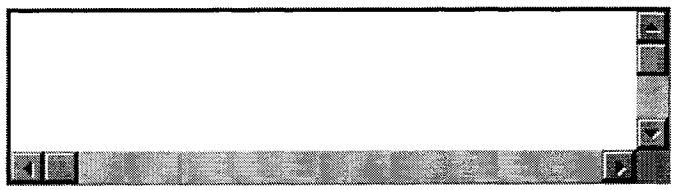
12. **What learning support did you receive on (through) the bulletin board?**



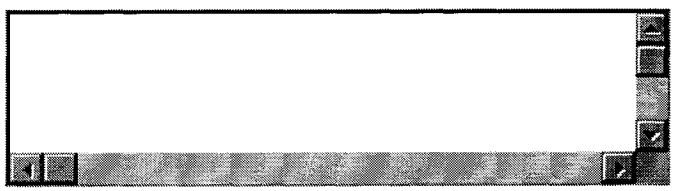
13. **Did you receive feedback from members of your group? If so, what was it and how did it help you in your profession? If not, suggest reasons why not, and what might be done to improve feedback.**



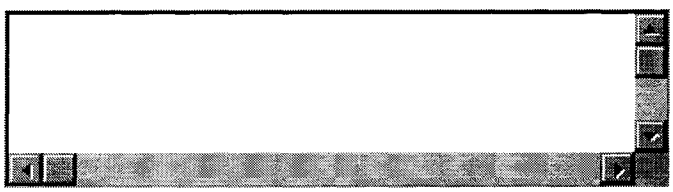
14. **How is the bulletin board different from face-to-face communication?**



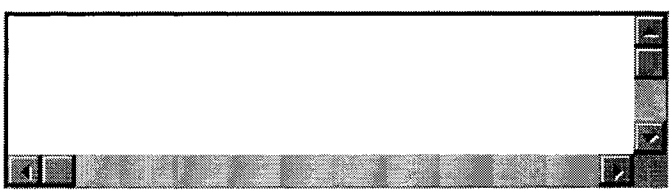
15. **What was the most beneficial aspect you received from using this bulletin board?**



16. **What topics or subjects do you recall that promoted the most discussion on the bulletin board?**



17. **What suggestions do you have for improving the bulletin board discussion?**



Part C: Involvement with e-group bulletin board

Direction: Please click the circle that best describes your bulletin board use.

18. **How often do you access the bulletin board?**

○ daily ○ 2-3 times/week ○ once/week ○ twice/month ○ once/month

19. **How often do you post new messages on the board?**

○ daily ○ 2-3 times/week ○ once/week ○ twice/month ○ once/month

20. **How often do you get replies to messages posted?**

○ always ○ often ○ sometime ○ rarely ○ not at all

21. **How do you read the messages on the bulletin board? Check all that apply.**

☐ scan the subjects for issues of interest
☐ skim or check to see who posted the message
☐ read the most recent messages posted
☐ Other, please explain _____

22. Were you able to access the bulletin board from your school?

○ yes ○ no

23. Were you able to access the bulletin board from home?

○ yes ○ no

24. **What kinds of problems did you encounter when using the bulletin boards? Check all that apply.**

☐ insufficient time to access the bulletin board
☐ slow response on the bulletin board
☐ lack of access to a networked computer
☐ other, please describe _____

25. **What do you use the bulletin board to communicate with members of the e-group about? Check all that apply.**

☐ resource materials
☐ classroom management techniques
☐ teaching ideas and strategies

☐ coordinate travel to meetings

Part D: Demographic Information

Direction: Please click the circle that best describes you.

26. **Gender**

○ Male ○ Female

27. **Age in years** ○ 21 - 25 ○ 26 - 30 ○ 36 - 40 ○ 41 - 45 ○ >45

28. **Courses taught** (check all that apply)

☐ Foods & Nutrition
☐ Human development & Parenting
☐ Consumer Economics
☐ Others, specify
☐ Textiles & Clothing
☐ Housing
☐ Comprehensive FACS

29. **Years of teaching completed**

○ 0 -1 ○ 2 - 4 ○ 5 - 7 ○ 8 - 10 ○ 11 - 14 ○ 15 or more

30. Educational level

○ Bachelor's Degree ○ Master's Degree ○ Specialist Degree ○ Doctorate Degree

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THANK YOU!

FOR RESPONDING TO THIS SURVEY. PLEASE SEND BY CLICKING THE SUBMIT BUTTON.

submit reset

APPENDIX F

TO JOIN AN E-GROUP

To join an e-group. A Virtual Conference for Family and Consumer Sciences Teachers

E-Group available	You can become part of a free online community that will help you share ideas and network among your peers. Groups have been established for you to join. First, you must join "e-groups" and then, join the group(s) you want to be a part of.
How to join	All you need to join the discussion group is e-mail and/or web access. To join e-groups.com: 1. Point your web browser to http://www.egroups.com 2. Click on <New Member? Sign-up today for free> on the upper left side of the screen. 3. Follow the instructions for registering by entering the information requested at Step 1. Immediately, you will receive an e-mail message inviting you to join. Step 2. is to respond to this e-mail message to activate your service. REMEMBER the password you select because you will use it each time you visit this site. Follow the instructions for completing your subscription.
General information	You can choose to receive messages via e-mail (in individual or daily digest format) or only by accessing them via the web on the group's home page. To send messages, you may (1) Post messages at the group site or (2) Post messages at your e-mail site using the e-group address. Use the second method when sending attachments. Use your e-mail program's reply feature to respond to a message. Remember, replies go to all subscribers. If you want to send mail to an individual, copy that person's address manually.
Explore	Look over the e-groups page to learn about other features available. If you have questions, contact the moderator of the group.

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